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LANGUAGE AND LEARNING :

EFFECTING CHANGE THROUGH COLLABORATIVE RESEARCH

IN MULTILINGUAL SCHOOLS

VOLUME I

Final Report to the Ontario Ministry of Education
on Grant No. 1000 under the Block Transfer Grant to OISE

Principal Investigator: Dr. Gordon Wells
Ontario Institute for Studies in Education

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INTRODUCTION

At a recent conference, four members of the project team, two teachers and two researchers, made a half-day presentation with the title 'Then I said to myself "Maybe it'll be kind of fun"'. The title for the presentation was taken from the learning log of a Grade Three Portuguese-speaking child taught by one of the teachers, who was reporting on how she had revised her original ideas about studying mealy worms. The video-tape that we showed during the presentation not only proved that Margarida was right in thinking that studying mealy worms could be fun; it also provided powerful evidence of the learning that can take place in classroom communities dedicated to collaborative inquiry. The children were learning; the teachers were learning; and so were the members of the research team who were associated with their inquiries. During the last year, there have been several similar occasions, at which teachers and researchers have worked together to prepare and present accounts of what they have learned through their collaborative inquiries at provincial and international conferences. This report will attempt, from a variety of perspectives, to present some of what has been learned.

Four years ago, when the project was still at the planning stage, we could not have predicted such an outcome. At that time, the three strands of the project were conceived as relatively independent of each other. The greater proportion of the time and resources was to be given to a systematic longitudinal investigation of the language and learning of three cohorts of children from four ethnolinguistic backgrounds. Within this design, a more intensive study of writing development was to be carried out in one of the four schools. And finally, an attempt was to be made to engage in collaborative research with the staff of the four schools, although precisely how this was to be done was left to emerge as the study progressed. The anticipated final report was to have been of the traditional kind, with a description of method, presentation of results, and discussion of possible implications.

From Margarida, her classmates and her teacher - and from the many other people involved in the project - we have come to realise that almost all serious attempts to learn through inquiry and writing do not proceed in such a predictable, linear, fashion. Revision - of goals, of methods and of understandings - is of the essence of meaning-making, particularly when the attempt is undertaken collaboratively by such a large team of participants, with differing reasons for becoming involved. If we have learned one thing, it is that such an enterprise is difficult, with moments of frustration and even despair in the face of what seem to be irreconcilable differences. But we have also

learned that differences of point of view and of values are the very life-blood of a living community, providing the impetus for individuals to question and revise their taken-for-granted assumptions and preconceptions, and to reach a fuller and richer understanding. For almost everybody concerned, these four years have been a time of growth, both professional and personal.

In this report will be heard many and varied voices: children's, teachers' administrators' and researchers'. Inevitably, it is the voices of the researchers that will dominate, since it is they who have done most of the writing. But even they do not sing in unison. The report thus offers a variety of perspectives on language and learning in multilingual classrooms and schools, rather than the single perspective that is more common in documents of this kind. As such, we hope, it provides a more valid account of the multiple realities with which the project has been concerned than would a superficially more concensual report.

Six issues have been largely responsible for shaping the analyses and interpretations on which the various sections of this report are based.

1. The Development of Literacy is principally addressed in Parts Two and Three and in several of the published papers collected in Part Seven.

2. The Classroom as a Community of Inquirers is discussed by several of the collaborative papers in Part Six and again in papers in Part Seven.

3. Interaction with People and Texts is an issue which is considered from different perspectives in all sections of the report.

4. The Nature of School Achievement, Progress and Assessment is a central issue in Part Two of the report; it is also discussed specifically with respect to writing in Part Three.

5. The Relationship between School and Home is the major theme around which the case studies in Part Five are organized.

6. Collaborative Research is another pervasive theme. It is the central issue in Part Four and, from a different perspective, in Part Six, in which a number of collaborative projects are reported. Collaborative projects also figure in several of the published papers.

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Part Seven Appendix: Papers presented and published by members of the research team

1. Wells, G. `Apprenticeship in literacy'. *Interchange, 18.*[1/2], 109-123. (1987). Presented at `Il Jornadas Internacionales de Psicologia Educacion y Desarrollo Humano, Madrid, June 1986.

2. Shechter, M. and Schecter, S.R. `Children's acquisition of literary genre: science fiction versus fantasy.' Paper presented at the Boston University Conference on Language Development, October 1986.

3. Chang, G.L. & Wells, G. `The literate potential of collaborative talk'. In M. Maclure, T. Phillips, & A. Wilkinson (eds.) *Oracy matters*, Milton Keynes, England: Open University Press, 1988. Presented at The International Oracy Convention, Norwich, March 1987.

4. Chang, G.L. & Wells, G. `Concepts of literacy and their consequences for children's potential as learners'. In S.P. Norris & L.M. Phillips (eds) *The breadth and depth of literacy: political and educational perspectives*. In press.

5. Wells, G., Chang, G.L. & Maher, A. `Creating classroom communities of literate thinkers'. In S. Sharan (ed.) *Cooperative learning: theory and research*. New York: Praeger. In press.

6. Chang, G.L. & Wells, G. `Learning about learning through interaction'. Paper presented at AERA Annual Meeting, San Francisco, March 1989.

7. Wells, G. & Chang, G.L. `Intersubjectivity in the creation of knowledge'. Paper presented at the SRCD Biennial Meeting, Kansas City, April 1989.

8. Wells, G. `Talking about text: where literacy is learned and taught'. Eminent Scholar Seminar, Martha L. King Language and Literacy Center, Ohio State University, June 1989.

9. Wells, G. and Chang, G.L. `Effecting educational change through collaborative research.' Paper presented at the Annual Conference of the Canadian Society for the Study of Education, University of Manitoba, June 1986.

10. Wells, G. `Some isssues arising from attempting collaborative research.' Paper presented at the Annual Conference of the Canadian Society for the Study of Education, McMaster University, June 1987.

THE RESEARCH TEAM

Principal Investigators:	Dr. Gordon Wells Dr. Monica Heller (1985-1986), Dr. J. Cummins (1985)
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LANGUAGE AND LEARNING:: EFFECTING CHANGE THROUGH COLLABORATIVE RESEARCH IN MULTILINGUAL SCHOOLS

PART ONE. AN OVERVIEW OF THE PROJECT

The original proposal for this project began with the following statement of background and objectives:

The proposal is based on the following five principles, to which the proposers are strongly committed on the basis of their reading of the literature and of their own previous work:

1. the major purpose of schools as educational institutions is to facilitate student learning;

2. efforts to bring about change in schools should be principally addressed to more effective achievement of (1);

3. the teaching-learning relationship is chiefly realized through communication, for which language - both spoken and written - provides the dominant mode;

4. the success with which pupils meet the learning objectives prescribed is critically dependent on their ability to engage effectively in such communication;

5. this success is also critically dependent on teachers' ability to engage collaboratively with pupils in their construction of knowledge and to make provision for them to interact and work collaboratively with their peers.

Within the context of these principles, the objectives of this present proposal are

1. to investigate the relationship between different aspects of children's linguistic resources and their use of these resources in school in both spoken and written modes (and in both first and second languages in the case of bilingual children).

2. to investigate the relationship between pupils' linguistic resources, the types of classroom interaction that they experience and their school achievement.

3. by involving the teachers in discussions of the research and of the information obtained in (1) and (2) above, to promote collaboration between teachers, schools and researchers in the determination of directions for desired change and in the means for their achievement.

4. by means of continued observations of classroom activities, to evaluate the success of the attempts to bring about change and to describe and evaluate the nature of these changes as they are experienced by individual pupils.

In general terms, these objectives have remained unchanged throughout the duration of the project. However, what has changed is the relationship between them and the methods used to try to achieve them. Furthermore, an important addition was made in the second year with the introduction of a further objective: to make an intensive study of the development of writing. In Part One of the report, we shall therefore give an account of the emerging design of the study and consider the factors that were responsible for the changes that occurred. We shall start by describing the longitudinal study of the children.

The Longitudinal Study - as Planned

In the early stages of the project, it was the longitudinal study of the children, that is to say the first two of the above objectives, that demanded the most attention, and over a period of several months the research team met regularly to construct a theoretical framework to guide practical decisions about the types of data to collect. At this point, we considered a main aim of the project to be that of gaining a better understanding of the reasons for children's differential achievement in school.

From the outset, however, we were aware of the important difference between achievement, measured by reference to age- or grade-related norms, and the progress made by individual students over a particular period of time, measured in terms of their improved performance in curricular activities. Norm-referenced assessments of achievement undoubtedly have a part to play in monitoring the effectiveness of schooling at a provincial or board level, but the use of this approach to evaluation can be misleading, and in some cases detrimental, when applied to individual students. This is particularly so in the case of students from ethnolinguistic minorities, who not only have to master the content of the curriculum but also the language in which this curriculum content is encountered. However, although achieving mastery of the language of the classroom certainly makes greater demands on such students than on those for whom it is their first language, it is not clear at the present time whether the difficulties supposedly encountered by minority as opposed to majority group students are the result of differential command of the medium of learning and teaching, or whether they are the result of less directly observable factors, such as family practices or attitudes to school learning, which are associated with ethnic group membership.

The theoretical position we adopted assumed that both family background, including cultural and linguistic practices, and individual differences in ability are likely to have an influence on school achievement. However, we also recognized that variation in achievement does not result from differences in child characteristics alone but rather from an interaction between these characteristics and the learning opportunities that are provided in particular classrooms. For the activities which provide the opportunities from which the child learns are not identical from classroom to classroom nor, even within the same classroom, are these activities experienced in the same way by all children.

This is due in part to the way in which Ministry and School Board guidelines are differently interpreted within particular schools, according to the guidance provided by the school administration and in response to the particular ethos that has been established within the school. In part, it is also due to the contribution that the individual teacher makes according to her or his own beliefs about learning and teaching, which may also be influenced by her or his expectations about the particular children in the class.

A particular child's progress in school, therefore, will be dependent on that child's unique classroom experiences, which will result from the way in which his or her

characteristics interact with the activities in which he or she engages. These activities, in turn, will be prescribed for the child, treated either as an individual or as a member of a larger group, in the light of the teacher's interpretation of the board's curriculum policy. Furthermore, they will be engaged in according to the child's aptitude and willingness, which in turn are dependent on his or her relevant intellectual and linguistic abilities and the interests and expectations which he or she brings to tasks of the kind in question.

The relationship between these various factors was conceptualised as represented in Figure 1.

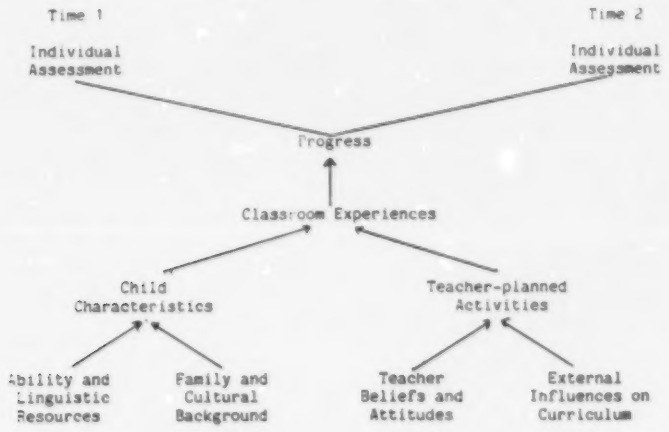


Figure 1. Theoretical model for the explanation of differences in school achievement

In order to investigate the relationship between these various factors, the study was designed to allow the use of both quantitative and qualitative methods of data collection and analysis. To this end, a sample of 72 children was selected from four ethno-linguistic populations at three grade levels (Senior Kindergarten, Grade 2 and Grade 4 at the commencement of the study) in four schools in the jurisdiction of the Toronto Board of Education. In each grade at each school, two children were native speakers of English and two were native speakers of Chinese (Cantonese). In two of the schools, the remaining two children at each grade level were native speakers of Greek and, in the other two schools, of Portugese.

The plan was for each child to be individually observed three times each year for a period of three years and for other data to be collected, as called for by the components of the model represented in in Figure 1. The instruments used will be briefly described in the following paragraphs.

Progress, as conceptualized in this model, was to be calculated as improvement in performance between two points of assessment. Originally, we had intended to use whatever standardized tests were administered by the schools, on the assumption that these would be the same throughout the board's jusrisdiction. This, however, proved not to be the case, as each school was free to determine its own assessment policy. In practice, there were no particular tests that were used in all four schools; indeed, there was very little use made of standardized tests at all. A battery of tests had to be put together, therefore, that would yield estimates of each child's general academic ability

and of the extent of his or her command of linguistic resources, both in English and, where relevant, in a first language other than English. The tests selected assessed performance in the following areas: oral reading speed and accuracy; silent reading comprehension and inferencing; math computation; math verbal problem solving. These tests were administered in English. In addition, command of spoken language was assessed using a rating scale that was completed by the field researcher for the child's first language and, in the case of command of spoken English, by the researcher in conjunction with the teacher. Assessments of progress of a less formal kind were also solicited from the teachers at regular intervals. Finally, progress in writing was assessed on the basis of samples of children's writing that were collected at regular intervals and evaluated using an instrument designed by a member of the project team (Chang, 1987).

Central to the design of the longitudinal study, however, was the collection of data concerning classroom experiences. These were obtained from regular classroom observations, each lasting a complete session, either morning or afternoon. During the observation, a research officer made a continuous description of the child's behaviour, typing the notes directly into a lap-top computer. This written record was subsequently edited and then categorized in terms of an ethnographic coding scheme, the completed file being entered into the central computer for subsequent analysis. The descriptive notes were also supplemented by a continuous audio recording, selected episodes of which were transcribed for subsequent qualitative analysis.

The ethnographic coding scheme was developed on the basis of actual observations and then revised in the light of experience of using it. The intention was that it should provide a systematic framework to guide the observations and at the same time yield quantitative data which would allow comparisons to be made between individuals and groups according to school, grade and ethnolinguistic background. The scheme is organized in terms of two major levels: Period and Activity. Period describes classroom activity in terms of the major units of the curriculum (e.g. Math, Gym, etc.). At this level, it is the teacher's point of view that is adopted: what the students are supposed to be doing at any particular time (or, in classrooms where children are expected to work more independently, what the child being observed is supposed to be doing). The level of Activity is then used to categorize the sequence of activities in which the observed child engages during the designated period, selecting from a predetermined set of activity codes. The basis for the categorization of activities is the type of linguistic interaction involved and, where appropriate, the nature of the resources used (e.g. Read reference book, Write extended text, Listen to story read aloud, etc.) At the level of activity, a categorization is also made of the participant structure in which the observed child is engaged: whole class, alone, small group with teacher, etc., and of who initiated the activity. (In the version of the scheme used during the first year of observations, there was a third level, that of Routines, which categorized the child's moment-by-moment behaviour as actually observed. This level was subsequently abandoned, for reasons that will be explained below.) A copy of the Coding Scheme is included later in the report.

The identification of teacher-planned activities was made directly from the observations. Most classrooms had a regular time-table, in which different curriculum subjects or areas were scheduled for particular times on particular days. Even when this schedule was not strictly adhered to, there was little difficulty in deciding which 'period' was in progress at any particular time. Categorizing the sequence of activities in which the child engaged was not always so straightforward, however. 'Getting on with a project', for example, could involve a combination of simultaneous activities which required

different codes. To cope with this, a number of mixed categories were introduced to account for the most frequently observed combinations.

An explanation of why teachers make provision for the particular activities that they do cannot be obtained through direct observation. Instead, an in-depth interview with each individual teacher was required to discover the basis of her or his beliefs about the value of different types of activity for particular learning objectives. Since some form of grouping was employed in the majority of classrooms, the basis for such grouping and the grounds on which groups were assigned particular activities was also explored through interview questions. External influences on the teacher's curriculum planning were investigated through interviews with the Principal as well as with the classroom teacher.

The individual child characteristics that were assumed to influence the manner and extent of children's involvement in the prescribed activities were identified from several sources. First, long-term attitudes to school, and to different types of classroom activity, as these might be influenced by the cultural values and expectations of the home, were investigated by means of an interview with the child's parents, as were the opportunities the child had had to use English and/or some other language(s) in the home and community environment in the pre-school years. Secondly, personality characteristics, insofar as these were judged to be important for engagement in teacher-planned activities, were inferred from the regular classroom observations and from discussions with the child's parents and teacher. Finally, some of the above topics were also addressed, together with questions about their concepts of themselves as readers and writers, in informal interviews with the children themselves.

Revising the Design

The primary emphasis in the design just described was on the collection of data that could be subjected to numerical analysis. The intention was to derive values for each child on variables corresponding to each of the components in the model diagrammed in Figure 1 and to submit these data to statistical analysis in order to evaluate the model. The bare bones derived from this analysis were then to be fleshed out with qualitative analyses of the appropriate observation and interview protocols. Within this design, the study of writing development was to be qualitative in emphasis and restricted to a sub-sample of the children. Finally, the way in which the attempt to engage in collaborative research with the teachers in the four schools had not been worked out in any detail, but it was assumed, at least initially, that any plans for change would be based on a consideration of the 'results' that emerged from analyses of the data from the other twwo strands.

Over the course of the three years, however, this balance underwent a major reversal, with a greater inter-relationship developing between the three strands of the research and with qualitative rather than quantitative analysis receiving the greater emphasis. Several factors were responsible for these changes, of which the most important were: developments in our understanding of some of the key issues with which the research has been concerned; the potential contributions of the people involved in the project; and the problems encountered in trying to carry out the research as originally planned. Any one of these factors would probably have been sufficient to effect at least a partial movement in the direction that we took; together, they made the choice of this direction inevitable.

That is not to say that all the changes were willingly made - at least not on the part of the Principal Investigator. As the author of this overview, I must confess that my attempts to maintain the original design in the face of the accumulating arguments for

adopting alternative approaches undoubtedly added to the frustrations that, to varying degrees, were experienced by all members of the team in trying to play their parts in what turned out to be a demanding and multi-dimensional enterprise. Re-education is probably always accompanied by mixed emotions, particularly when it is as much required by events as being voluntarily undertaken. But one of the hard lessons that I had to learn was that, in collaborative ethnographic, as opposed to experimental, research, the individual characteristics of people and circumstances are a substantive part of the research rather than variables that can be conveniently controlled or partialled out.

In the sections of this overview which follow, I will attempt to give an account - from my own perspective, it goes without saying - of some of the major influences on the development of the project, which I see as a dynamic and collaborative attempt to make the best use of the available resources and opportunities. I will start with a decision, taken during the course of the first year, which was to add a new and important dimension to the original investigation.

The Development of Writing

Starting at the beginning of the second year, a third strand was added to the study in the form of a focus on the development of writing. Several factors led to this decision. First, the person who was to be appointed as a senior research officer with responsibility for this strand of the research, had, as a doctoral student, been collecting data for her study of writing development in one of the four schools in the project. This work, we saw, could be given a valuable longitudinal dimension by being extended over the full three years of the project. At the same time, we saw that such an intensive study of writing development in one of the schools could provide an opportunity for a smaller but more detailed exploration of many of the issues that the larger project was already addressing, and that this would significantly enrich the interpretations we would be able to put on the observations made in the other schools.

A second reason for giving writing particular attention arose from the decision during the course of the first year to focus on the writing period in the classroom observations, both alone and in comparison with math. This had proved worthwhile and led to a systematic exploration of the way time was spent in writing periods in Grades Two and Four across all four schools, carried out largely by the senior researcher responsible for the writing study. (The outcome of this work is contained in a later section of the report.) At the same time, we had attempted systematically to collect samples of children's writing at intervals through the year as part of the basis on which to assess the children's progress. This material could, we realised, also be used in a much more substantive way to construct a theoretically-based description of children's development as writers which took account of both progress in the composition of meaning and growing facility in handling the conventions of text production. Such an undertaking would, we believed, be of seminal value, as there has been no other longitudinal research to date which investigates writing development over the age-range from five to twelve years in a manner which integrates these two dimensions. (The outcome of this work is contained in a subsequent section of this report.)

The focus on writing in the first year, we discovered, had also had indirect effects on some teachers' perceptions of the importance of writing. If we were asking to observe writing periods and to collect samples of children's writing, they should at least endeavour to make sure that there were data to be collected. As a result, some began to give additional attention to this part of their programme, particularly in the school in which the intensive study of writing development was already in progress. In fact, the

researcher's presence had done a great deal to strengthen a concern about writing felt by many teachers in the school and she had informally been able to share some of her insights with those teachers in whose classrooms she was making her observations.

This was a further reason for our decision. Here, we saw, was a situation that could be used to advantage with respect to the third strand of the study - the collaborative research with teachers. For not only was writing a curricular area about which teachers were concerned, but the observational techniques that the researcher had developed to study children learning to write in the classroom could also be used by teachers who wished to adopt a more research-oriented stance to their teaching, in order to have an informed basis on which to modify their pedagogical practices. A further advantage of a focus on writing, we argued, was that, if teachers could thereby be led to attend to their ways of responding to children's texts - and indeed to all the work they produced - they might move to a more collaborative relationship with their students - a change which it was one of the aims of the project to bring about. A report of two collaborative inquiries in which this actually occurred can be found in Chang and Wells (forthcoming).

The inclusion of a study of writing development as one of the three strands of the project was thus seen as being not only of value in its own right but as a way of enriching and integrating the two existing strands. That this expectation was fully justified will be seen in the sections of the report which follow, in which our thinking about writing, both as a social as well as an individual activity and as a cognitive-linguistic medium for thinking and learning, has illuminated almost every aspect of the study. Writing has also played a central role in a large number of the collaborative inquiries.

The proposal to include the writing strand was written before the study had been long under way and so it, too, was subject to many of the same constraints as the first two strands. Some specific problems should be mentioned here, however, as they were unique to this part of the study. Of these, the most critical was the limitation on the time and resources that could be devoted to it. First, no additional money was available to equip the senior researcher with the recording equipment used by the field researchers. A radio microphone was rescued from an earlier project but, without a lap-top computer, she was forced to make all her observational notes by hand and, where necessary, to type them into the computer herself. Secondly, she had to take on the responsibility of ensuring that the writing samples were collected from all four schools and of documenting and preparing them for analysis; this task was made more difficult by the fact that, in some classrooms, it was extremely difficult to obtain samples of writing produced during the specified periods. Third, with the reorganization of the responsibility for school-wide collaborative work (described below), she found an increasing amount of her time being taken up with this aspect of the project's activities, to the detriment of the longitudinal study of writing. In effect, more than any other member of the team, she was asked to carry out two jobs but with the time and resources sufficient only for one. Finally, despite the centrality of writing to the intellectual development of the project and to many of the collaborative inquiries, it received very little attention from the research team as a whole because of the many pressing practical concerns of those who did not see writing as one of their major interests.

Despite these constraints, which were a source of deep disappointment and frustration to the senior researcher responsible for this work, the achievements in this area were substantial, particularly in the conceptualization of the instrument for charting children's growth as writers and in the use of this instrument by a team of graduate students, under the senior research officer's leadership, to evaluate samples of writing collected from all the children in the project over the full three years; these achievements are also to be seen in the many papers for conference presentation and for publication of

which she was a co-author.

If all that was planned has not yet come to fruition, this must be seen as an inevitable consequence of the difficulties and constraints which all of us faced in trying to meet the sometimes conflicting objectives of the different strands of the research. It is to a consideration of these that we turn next.

Practical constraints

1. Constructing the Sample of Childreen

In its original conception, the research was to have been carried out in collaboration with two school boards and to have involved children from only three ethnolinguistic groups. Late in the day, however, one of the boards was unable to find the necessary resources and had to withdraw. When the Toronto Board of Education agreed to double its financial support for the project it was also agreed that a fourth ethnolinguistic group, Portuguese, should be added to the design and this had quite substantial ramifications. First, although there were some general advantages in increasing the range of ethnolinguistic groups studied, it made the construction of the sample much more difficult. To have found four schools with sufficient children from all four groups at each of the specified grade levels to enable the sample to be constructed as planned would have been impossible. It was therefore decided to look for two pairs of schools, two in the east and two in the west of the jurisdiction, that would allow a sample to be constructed that made possible a three-way comparison in each class. However, this introduced an unwanted difference in group size: in the total sample, there would be 24 English-speaking and 24 Chinese-speaking children, but only 12 Greek-speaking and 12 Portuguese-speaking children. Already, the possibility of carrying out statistically-based comparisons between groups had been seriously compromised.

In addition, what we had failed to take sufficiently into account in designing the sample in this way was the extremely high mobility rate in schools with a high proportion of children from minority communities. Even initially we had some difficulty in constructing the sample as described in the previous paragraph, as families had moved since the schools were originally approached. In several classes we found so few native speakers of English that, for sampling purposes, the category of native-speaker had to be enlarged to include children from Carribbbean countries and those in whose homes English was regularly spoken although the parents were not native-speakers of English. In another of the schools finding sufficient Greek-speakers proved impossible. Here the solution adopted was to make a trade-off with the other school in the pair: more Chinese-speakers in the first school were balanced by more Greek-speakers in the other.

By the beginning of the second year, the situation had deteriorated still further, as sample children moved with their families to other neighbourhoods. At this point replacements were found to match most of the children who had withdrawn. But when the same pattern was repeated at the end of the second year it became apparent that the original plan to conduct statistically-based comparisons within a longitudinal design would have to be abandoned, since the numbers in some of the cells in the original sampling frame had become too small. Accordingly, replacement were not sought for children who withdrew during the second year. By the end of the third year, of the 72 children originally selected, it had only proved possible to observe 42 of them (58%) continuously over the full three years of the study.

A further, unanticipated, problem was that we were unable to follow all the children who did remain in the sample. As a result of the end-of-year placement reviews in each school, a small number of children were retained at the same grade level and so could no

longer be observed in relation to the rest of their cohort. In addition, in several cases, although promoted, the members of the cohort were split between two or more classes at the same grade level, with a similar effect on the schedule of observations. The final blow occurred in the third year, when a number of the children who were being followed were placed in the classes of two teachers who refused to allow the field researchers to make observations in their classrooms.

Both the longitudinal study and the study of writing development were affected by the loss of children from the sample for, even when there were replacements, the specifically longitudinal dimension of the study was disrupted by the lack of continuous data over the three years. For the writing study as well as the longitudinal study, therefore, it was impossible to meet some of the original objectives.

2. Sampling Classroom Experience

A constraint of a different kind arose from the difficulties encountered by the field researchers in carrying out the originally proposed schedule of observations. The difficulties were of two kinds. First, the time-table. Because an audio recording was an integral part of each observation, it was decided to avoid making visits when certain activities such as gym and swimming were scheduled. In addition, French, Heritage Language and ESL periods had to be avoided, because in many cases the teachers concerned were unwilling to allow observations in their classes. This meant that many half-day sessions had to be excluded, with the result that it was not possible to obtain a truly representative sample of each child's classroom experience. Thus, depending on the particular organization of the time-table for individual classes, the cumulative observations resulted in over-representation of some areas of the curriculum and serious under-representation of others.

Our original intention had been, by means of quantitative analyses of the coded observations, to make comparisons between grades, classes and ethnolinguistic groups, of the way in which time was distributed over different areas of the curriculum and different learning activities. Several such analyses were carried out in the first two years of the project and the results discussed with the teachers concerned. It was in the course of these discussions that the possibility of serious bias in our sampling of classroom experience was confirmed, as wide discrepancies were noted, in some cases, between the teacher's perception of how time was distributed over periods and activities in, for example, the course of a week and what had actually been coded in the sessions that had been observed.

This discovery had serious implications for the uses that could be made of the coded data from the observations, as will be descibed in more detail in a subsequent section of the report. However, the discussions themselves were very worthwhile in providing an invitation to the teachers to reflect upon the overall structure of the learning opportunities that their programmes provided. They also provided an opportunity for researchers and teachers to calibrate their definitions of taken-for-granted terms such as 'writing', 'literacy' and 'problem-solving' and to think more carefully about the relationship between the teachers' goals for particular activities and what the children actually did whilst engaging in them. Thus, although they led to a reduction in the weight to be placed on the results of the quantitative analysis of the observational data in the investigation of children's learning experiences, these discussions contributed to the goal of collaboration between researchers and teachers and, in some cases, led the teachers concerned to make changes in their programmes to rectify imbalances of which they had now become aware.

3. The Field Researchers' Tasks

For the original design to be successful, it was essential that comparable data of a variety of kinds be systematically collected on each of the children in the study according to a schedule planned in advance. However, the number and variety of tasks that this entailed proved to be more than the field researchers were able to carry out, particularly in the first few months of the investigation, when they were still becoming familiar with the various instruments and the machines they were required to use. In addition to the half-day spent actually observing the target child, each observation involved a substantial amount of time spent in coding the field notes and in transcribing segments of the audio recording. Although the researchers were supplied with lap-top computers to remove the need for subsequent typing up of the field notes made on site, the mode of operation of these machines imposed a number of time-consuming operations in editing and saving the files. The tasks of coding and transcribing also took longer than had been anticipated, and this difficulty was exacerbated by necessary revisions made to the coding scheme in the light of experience in using it.

In addition to the tasks involved in making the observations, the field researchers were also responsible for assessing the children's language abilities in both first and second languages. They were also responsible for carrying out the interviews with the children's parents. Both these tasks further involved the construction or adaptation of the necessary instruments and the production of translated versions for use in L1 assessments and in the interviews with Chinese, Greek and Portuguese-speaking parents. The interviews themselves also caused difficulties, first because, in many cases, it proved extremely difficult actually to meet with the parents, whose hours of work were long and unconventional and, secondly, because, for a variety of reasons many of them were unwilling to answer the questions with the amount of specificity that was required.

By the end of the first term, the field researchers were feeling overwhelmed by the number of tasks they were required to perform. Over the course of the next year, therefore, various revisions were made to the original work plan in order to try to find an acceptable solution. The number of observations to be made of each child was reduced from four each year to three (one per term); the amount of transcription to be carried out was reduced to a maximum of thirty minutes of recorded time per observation; the third, and most detailed, level of coding of the field notes was abandoned. A further change that was made to reduce the field researchers' load was the appointment, at the beginning of the second year, of a part-time researcher to take over the responsibility for designing, administering and scoring tests of the children's linguistic and mathematical abilities.

4. The Shift to Qualitative Research

Although the emphasis in the original design was on observations that would yield quantitative data, the fundamentally ethnographic nature of the study called equally for descriptive accounts of classroom activities that were rich in significant detail. From this point of view, the early observations were inadequate.

As already mentioned, one of the purposes of the ethnographic coding scheme was to provide a framework to guide the field researchers' observations so that it would be possible, on the basis of the coded data, to make systematic comparisons between between individuals and groups. However, these coded data were not intended to be a substitute for detailed description. To begin with, however, the field researchers found that the requirement that the notes made during an observation should be such as to allow each segment of activity to be timed and described according to the categories specified in the coding scheme precluded their getting an overall view of what was happening in the classroom and, hence, seriously limited their ability to interpret what

they observed. As one of them put it, they were unable to see the wood for the trees or, as another remarked, they were being asked to be little more than human recording machines.

Initially, it had been assumed that the principal investigators and coordinator would be responsible for interpreting the field notes, but it soon became apparent that this was neither feasible nor desirable. In part, the reason was logistical: there was not enough time for the meetings necessary for one of the senior members of the team to go over the observations with the field researchers who had made them. Furthermore, because the field researchers had been making coding their first priority, the notes themselves did not provide sufficient information for another person to interpret them.

More important, however, was the realisation that the two tasks of making and interpreting the observations could not be divided between two people. Clearly, therefore, since the responsibility for interpreting and writing about the observations was going to fall on the field researchers, it became imperative to find ways of enabling them to gain and record in their notes a broader perspective on the classroom life within which the target children were being observed and, at the same time, a fuller account of what these children were doing. Here, the advice of the senior researcher in the writing study was particularly valuable; from the beginning, she had been writing descriptive notes that she knew she would subsequently analyse to identify patterns of learning and development which would be written up in the form of case studies and more general ethnographic reports. Of particular importance as an objective for such analyses, as she has written, 'is an examination of children's writing processes and the changes that occur which are related to the nature of the writing-based learning opportunities, the roles and interactions of peers and teacher, and the wider organizational structure of policy and beliefs that shape the intellectual life of classrooms' (Sixth Interim Report, June 1988). Using her own observational notes as examples, she was able to illustrate the sorts of details that the field researchers should aatempt to note in order to be able to carry out similar analyses with respect to other areas of the curriculum.

In order to facilitate the making of more interpretable observational notes, two changes were made in the procedures to be adopted. The first, already mentioned, was to abandon the most detailed level of coding. The second was in the stance to be adopted by the field researchers in making their observations. Rather than remaining detached from the life of the classroom, they were encouraged to become participant observers. That is to say, in addition to observing the target children, they also tried to find opportunities, for example at the end of an activity, to talk with them about the task that had been undertaken in order to understand their perspective - how they had understood it, and what strategies they had employed in carrying it out.

Towards the end of the second year, however, we realised that these changes were still not enabling the field researchers to gain a sense of the rhythm of learning that characterized each classroom. So, in the third year, we made a final revision. Instead of making three observations of each child during the course of the year on an individual basis, it was decided to consolidate one 'round' of observations in each classroom into a more intensive study of one unit of work. Our intentions were twofold: to gain a greater understanding of how a unit of work unfolded in each classroom, and to document the experiences of individual children in relation to this broader context. With these changes, the field researchers were better able to gain a sense of individual children's classroom experiences and of the factors that affected their educational progress.

All these changes were of little value, however, unless the field researchers had the time to analyse and write about the observations they were making. In the original design,

their appointments were due to terminate at the end of the third school year, when the period of data collection was completed. As mentioned above, the expectation had been that the analysis and writing up of the data would be carried out by the principal investigators and the project coordinator. When it was realised that this division of labour was neither desirable nor feasible, an attempt was made to secure funding for an extension of the field researchers' appointments in order to give them time to carry out this additional work. A request was first made to the Ministry of Education to this effect; unfortunately, it was not granted. A request was then made to the Toronto Board of Education, who responded with an additional grant, which was sufficient to extend the appointment of all four field researchers for a further month. During this time - and in their personal time, since the termination of their appointments - the field researchers have drawn upon all the available data to prepare comparative case studies which explore issues of particular relevance for children from one or other of the minority ethnolinguistic communities represented in the study. These case studies are included in a later section of this report.

The Organization of the Research Team

In the previous section, an account was given of some of the practical constraints that led to the progressive revision of the design of the longitudinal component of the study. In accounting for the way in which the project developed, however, consideration also needs to be given to the influence of two groups of people, the research team and the personnel in the project schools, and to the relationships within and between the groups. We shall start with the research team.

The original team consisted of three full-time members of the OISE faculty, who were the principal investigators, a project coordinator, a systems analyst, four field researchers, an administrative clerical assistant, and a number of graduate students. A senior research officer joined the team at the beginning of the second year to take responsibility for the study of writing development. In keeping with the design of the study, with its relatively distinct - although to be inter-related - strands, the proposed organizational structure for the group was complex. The planning and direction of the study was to be undertaken by the three principal investigators, with the assistance of the coordinator; the field work in the longitudinal study was to be carried out by the field researchers under the supervision of the coordinator; the construction and maintenance of the longitudinal data-base, together with the analysis of the data, was to be the responsibility of the coordinator working with the systems analyst and the administrative assistant; and the graduate students were either to use the project as a framework within which to pursue their doctoral studies or work on specific projects arising from the interests of the principal investigators. This was the proposed administrative structure, which, as can be seen, was essentially hierarchical in nature. At the same time, in keeping with the collaborative intentions of the project, a second structure was set up, in the form of a weekly half-day meeting, at which the intention was to draw upon the very varied expertise within the team in a number of ways: as a seminar in which each could learn from the expertise of the others; as a forum for the consideration of the issues that needed to be taken into account in the direction of the project; and as an occasion for resolving the practical matters arising in relation to the organization of the different tasks that had to be carried out.

In practice, however, the design failed to measure up to reality. First, the pressing need to resolve problems arising in relation to the longitudinal observations meant that the weekly meetings during the first six months of the project were almost entirely devoted to what came to be called 'housekeeping issues'. Decisions on these matters inevitably tended to be taken by the senior members of the team who were responsible for the

design of the project. This set a pattern that was later hard to break, so that, when there was an opportunity for a more democratic discussion of issues, meetings still tended to revert to a 'housekeeping' mode. As a result, much less time was spent than had been intended on the professional development of group members in relation to the major themes of the investigation. As already mentioned, the study of writing development was particularly disadvantaged in this respect. Furthermore, the graduate students, who might have contributed in important ways to the development of our thinking, decided that the weekly meetings were of little interest to them and so they rarely attended.

The perception of a polarization into two groups - management and workers - that had developed was further exacerbated by the hierarchical administrative structure. The field researchers resented the apparently supervisory role of the coordinator and, after some months, demanded the right to plan their own observational schedules. Since this seemed likely to be more efficient as well as more in keeping with the spirit of the project, the administrative structure was revised and an attempt made to discuss all organizational matters in the full project meetings prior to a decision being taken by the management group. This certainly improved relations within the team, but there were two other factors which made it extremely difficult to achieve the collaborative mode of organization that would have been most in keeping with the spirit of the project.

The first of these was the lack of continuity in the make-up of the research team. After three months, one of the principal investigators withdrew from the project because of the pressure of other commitments; at the end of the first year, the second principal investigator withdrew for the same reason. It was not possible to replace either of them with people of equivalent knowledge and experience. Also, at the end of the first year, the project coordinator and one of the field researchers left to take up jobs that represented an advance in their careers and, a few months later, the systems analyst, who was by then only working on a half-time basis on the project, left for the same reason. The field researcher was replaced immediately, but six months elapsed before two senior research officers were appointed to take over some of the responsibilities originally shouldered by the principal investigators who had resigned and by the project coordinator. (In the light of the changing emphasis from quantitative to qualitative analysis, the systems analyst's position remained unfilled.) Within six months of taking up the appointment, one of these senior research officers resigned for personal reasons, and again there was a gap before a replacement could be found. Finally, during the last two years of the project, two of the field researchers and the administrative assistant took maternity leave.

The second factor was the difficulty of achieving a common perspective, both theoretically and in relation to the tasks to be carried out, among a large group of individuals with very different backgrounds and experience. The original design had called for people with quite specific but differentiated areas of expertise including, in the case of the field researchers, fluent bilingualism in English and one of the languages spoken by the children to be studied. In the event, however, as a result of the changing emphasis in the design of the study and in order to fill the gaps left by the changes in staffing, everybody was called upon to attempt tasks for which they were unprepared, both in terms of their expectations and in terms of the lack of the relevant experience. Indeed, to have achieved in full the complex objectives of the project, as these emerged over the four years, every member of the team would ideally have to have had some previous experience as both teacher-educator and researcher and also as a writer of research papers, as well as the specific expertise necessary for the aspect of the project for which they were primarily responsible.

Not surprisingly, these heavy demands gave rise to anxiety and stress that put additional strains on the spirit of collaboration that we were all working to achieve. That the project team was able to continue to work coherently and to meet so many of its objectives is a tribute to the dedication and hard work of its individual members and to the continuing support we received from the officers of the Ministry of Education, the Toronto Board of Education and OISE Field Services and Research who were responsible for the project. Particular recognition must be given, in this respect, to the Senior Research Officer who joined the project at the beginning of the second year to develop the third strand of the investigation - the intensive study of writing development. Working under difficult conditions, she not only fulfilled that particular responsibility but also played a major role in providing a focus for the longitudinal study and in establishing a mode of teacher-researcher collaboration that integrated the three strands of the project.

The Participation of Schools and Teachers

In seeking the schools' participation in the project, two sorts of involvement were proposed. First, we were asking to be allowed to follow three age-cohorts of children over the course of three years and, secondly, we were inviting the teachers of these children and other interested members of staff to engage in collaborative inquiries arising from the longitudinal study. However, because of the logistics involved, what was given prominence in the negotiations that led to the involvement of the four particular schools was the proposed longitudinal study of children from the four ethnolinguistic communities selected. Once the appropriateness of a particular school from this latter point of view had been established, what became important was whether there were individual teachers who were willing to participate.

In approaching possible schools, the suggestion was made that the decision to participate should be taken by the whole staff after they had heard a presentation about the project from the principal investigators. In this way, we hoped to gain a commitment to continued participation for the duration of the project. However, in some cases the Principal made the decision without such a meeting taking place. This was a contributory factor to the difficulties that we experienced in three of the four schools that joined the project in finding teachers willing to participate in the second and third years. As already mentioned, in two schools in the third year it was impossible to find any teacher who was willing to participate in the study at one of the grade levels concerned.

This negative response, ranging from reluctance to unwillingness, expressed by a small but significant proportion of the teachers approached seemed to have a variety of causes. In some cases, it stemmed from an unwillingness to take on what was perceived to be an additional responsibility on top of an already heavy workload. In other cases, the response seemed to be political: a refusal to be dragooned into an extra duty by the Principal in order to meet a commitment made by the latter. But by far the most frequent cause was mistrust. As one of the teachers (who later participated enthusiastically) put it, "I don't know what use you're going to make of the information. I don't want to find myself being criticized in public presentations." Before this teacher was willing to allow us into her classroom, a contract had to be drawn up and signed that guaranteed that no use would be made of any recordings made in her classroom without her permission on each occasion. In fact, such an undertaking had already been orally given at the beginning of the project. What this incident illustrates, however, is the very deep-seated mistrust that many teachers have of researchers and, in this case, not without reason, as the teacher in question had already heard the principal investigator make a presentation at a conference for teachers in which critical remarks were made about a recording of a teacher-led discussion observed in a previous research

project.

From a teacher's perspective, such a reaction is quite understandable. Since one of our declared aims was to seek a better understanding of how individual children make use of the learning opportunities provided by their teachers, it would have been dishonest to deny any interest in the nature of those learning opportunities. It is therefore easy to see why some teachers would perceive our intentions to have been essentially evaluative. In such cases, explanations of our further intention to collaborate with them in the exploration of some change in their teaching only deepened the mistrust: why should it be assumed that change was desirable unless their current programme had already been negatively evaluated? What we were asking was that they should trust us without our being able to give them any evidence, at least in the early stages, to justify that trust.

Nevertheless, in both the first and second years, we were able to convince a sufficient number of teachers in each school for the longitudinal study to proceed as planned. And, by the third year, despite the refusal of two of the teachers into whose classrooms children in our sample proceeded, seven teachers had found participation in the first or second year so worthwhile that they asked to continue their involvement. Of these, four were already involved in a collaborative inquiry.

Collaboration between Researchers and Teachers

Two sorts of collaboration were envisaged within this investigation, the first an inquiry carried out by an individual teacher and one or more researchers, and the second an inquiry in which the whole staff or a group of teachers was involved in collaboration with one or more researchers. We shall first consider inquiries involving individual teachers.

Initially, we assumed that the longitudinal observations of the children in any particular classroom would raise a variety of issues which the teacher might wish to pursue. To prepare the way for this, a meeting was held at the end of the first term with each teacher in whose classroom children were being observed, at which the field researchers and coordinator discussed the progress of individual children on the basis of the observations and invited the teachers' comments. These were quite useful meetings, particularly in providing a relaxed atmosphere in which the participants could get to know each other better. However, no inquiries developed from them.

A different strategy was employed towards the end of the year, when meetings were held with the teachers from the four schools teaching at a particular Grade level. Video recordings were made in each classroom and the teachers were invited to select an episode to talk about at the meeting that would illustrate some aspect of their programme that they thought might be of interest to their colleagues. Quite a number of teachers found these meetings valuable in offering them new perspectives on the practical issues they had selected and, had there been time left within the year, some might have embarked on a more systematic inquiry.

With the resignation of several members of the research team, we were so overstretched at the beginning of the second year that we were unable to try any new initiatives. However, during the year, several collaborative projects emerged spontaneously. In one of them, a field researcher took up a teacher's interest in reading and writing in different genres and out of this developed an inquiry that continued into the third year. In another school, a senior researcher and field researcher undertook to provide assistance that a teacher had requested, in one case in documenting the effect of adopting a model of cooperative learning, and in another in contributing, in a partnership role, to a more activity-based approach to a unit on energy. In a third

school, it was the principal investigator's interest in collaborative talk that led to the involvement of one of the teachers and a senior research officer in analysing episodes videorecorded during a project on winter and the Yukon.

Discussion of these projects at our weekly meetings, and of the papers arising from them, provided an opportunity for the researchers to explore in more detail the conditions and constraints on collaborative research so that, by the beginning of the third year, we were better prepared to attempt a further initiative.

As already mentioned, it had been decided to use one round of observations to focus on the dynamics of learning over the course of one unit of work in each of the twelve classrooms. We now decided to use this opportunity to issue a further invitation to the teachers to suggest an issue for inquiry that could be pursued collaboratively with the field researcher during this round. It was left to each individual field researcher to arrange the timing of this round of observations; in practice, most were carried out in the middle of the year, although some of the inquiries that developed extended over a considerably longer period of time.

Where the teacher was willing to engage in a collaborative inquiry, the results of this initiative were very worthwhile. Topics investigated ranged from buddy reading and writing to the production of a class newspaper, and involved a variety of types of data collection. Because occasions were scheduled for joint planning of the investigation and for discussion of the various kinds of data that were collected, a true partnership developed, in which both teachers and researchers gained a deeper understanding of the ways in which the children took up and made use of the changed learning conditions that were studied in the different investigations. In several cases, these investigations led to the preparation of papers for conference presentations, as was mentioned at the beginning of this report.

Of the twelve classrooms in which such collaborative inquiries might have been carried out, six yielded the sort of outcome just described. In two of the remaining six, no inquiry was possible, as the teachers concerned had refused to participate in the study. This leaves four in which an attempt was made but with insufficient in the way of outcome for the partners to wish to write a report. The reasons for the differential success of these inquiries will be discussed in some detail in the section of this report which deals with the collaborative research strand of the project. Here we shall briefly mention some of the more salient factors.

Perhaps the most important, from the researchers' point of view, was the difficulty of combining two different roles when making observations in the classroom. Given the field researchers' primary responsibility to make detailed descriptions of individual children's classroom experiences, it was difficult for them to perform other functions, such as team-teaching or videotaping a group of children, that might have been a more appropriate form of support for an inquiry that the teacher wished to pursue. Furthermore, with the follow-up tasks to complete, such as coding the notes, transcribing episodes from the audio tapes, updating the profiles of individual children, and so on, there was little time for the field researchers to work on the observational data from other perspectives that might have been more immediately useful to the teacher. This difficulty was considerably reduced in the third year, when it was a unit of work rather than individual children's experience that was the focus of the observations. However, given the objectives of the longitudinal study, this could not have been made the regular mode of classroom observation.

A second difficulty, felt by some of the researchers, was their relative unpreparedness, in terms of previous experience, to act as collaborative partners on the sorts of issues that

were of most interest to the teachers. It must be remembered, however, that this sort of work was not included in the original job descriptions of most members of the project team. Thus, even when it was decided, in the third year, to attempt this particular form of teacher-researcher collaboration within the framework of the longitudinal study, it was undertaken under conditions that were less than optimal.

The attempt to initiate collaborative inquiries also needs to be evaluated from the perspective of the teachers. Here, three factors seem to have been responsible for the success that was achieved. The first and prerequisite factor was the establishment, over time, of a good working relationship between the teacher and the researchers who were in regular contact with her or him. Although this eventually occurred in the vast majority of cases, it was a gradual process, which took time. Significantly, many of the more successful inquiries involved teachers who chose to continue their involvement in the project for a second year.

The second factor was the recognition, on the part of the teachers, that collaborative undertakings could be responsive to their concerns about their own classroom programmes. Initially, because of lack of experience on our part, the invitation to engage in collaborative research was phrased in too abstract a manner: it was probably also assumed that the sort of research that was envisaged should be modelled on academic research of the kind that our longitudinal study was originally intended to be. Over the three years, however, we learned both from experience and from reading about other, contemporaneous, projects (e.g. Goswami & Stillman, 1987; Loucks-Horsley et al., 1987; Rowlands, 1986) that worthwhile inquiries can start in many different ways and take many different forms. Perhaps, most importantly, we learned that topics that grow out of, and have immediate consequences for, the current classroom situation are most likely to encourage both partners to become deeply involved in the investigation.

The third factor was the establishment of a goal for the inquiry in the form of a public presentation, either at a meeting within the school or at a conference. The commitment to make a report on what had been achieved helped considerably to focus the inquiry and to provide motivation to carry it through to some form of conclusion - even though, in most cases, this proved to be the jumping-off point for another round of inquiry.

By the end of the third year, therefore, a very considerable measure of success had been achieved in terms of engaging in collaborative inquiries with individual teachers. However, attempts to establish collaborative activities on a school-wide basis met with less success. This was due, in part, to the changes in project personnel. The original plan had been for the principal investigators to take the major responsibility for this aspect of the project, but, with the resignation of two of them, this became no longer feasible. Instead, with one of the newly appointed senior research officers taking overall responsibility for documenting and evaluating all aspects of the collaborative work in the schools, the responsibility for school-wide collaborative activities was divided between the remaining principal investigator and the three senior research officers, with each of them being responsible for one school. Two schools, in particular, were seriously affected by these changes of staff, with the result that they experienced a lack of continuity in the attempts made to initiate school-wide projects. The other major factors working against the uptake of our invitation were similar to those that operated in the case of individual teachers: an uncertainty about the value of what was being proposed and, hence, an unwillingness to give up personal time in order to attend meetings beyond the working day. Nevertheless, despite these difficulties, a certain measure of success was achieved.

At the beginning of the first year, invitations were offered to engage with interested staff

in each of the four schools on an issue of their choosing, and these were taken up with varying degrees of enthusiam. In one of the schools, when reminded of this invitation well into the third year, the Principal objected that he knew nothing of this aspect of the study (although it was certainly included in the initial presentation to him and his staff) and, in his opinion, there would be little interest in such an initiative. Not surprisingly, this was the school in which least was achieved in the way of collaborative inquiry, at any level. In a second school, regular monthly meetings were held in the later part of the first and for much of the second year with a small group of staff, which included those teachers who were pursuing individual inquiries. However, despite the support of the Principal and Vice-Principal, this group never identified an issue that attracted the interest of other members of staff, and meetings petered out towards the end of the second year. In a third school, no school-wide meetings were held at all but, as a result of the enthusiasm and commitment of the field-based research officer working in this school, a group of three staff members began to develop plans to form their own inquiry group and, when the official involvement of the research team stopped at the end of the third year, one of the senior research officers worked with them to help them to obtain resources to continue their inquiry and to plan and make presentations at conferences about the results of their collaborative activities.

It was in the fourth school, however, that we came nearest to achieving our objectives. From the beginning, the Principal had seen the participation of his school in the project as a way of improving the quality of writing in the school and he was anxious to involve the whole staff in in-school professional development. During the first year, regular staff meetings were held, in which an attempt was made to institute a writing workshop which involved the teachers themselves in writing as well as in making a study of some aspect of student writing. More important, in the long run, however, was the decision to use this writing workshop as a forum in which the requirement to formulate a school language policy for the Board was discussed. Having recognized that the production of this document was itself a writing assignment which could involve the whole staff, questions began to be asked concerning the purpose of the document, who was the intended audience, and so on. A discussion followed, more animated than any that had preceded, the outcome of which was an agreement that the document was first and foremost for the teachers and that its purpose was to require them to identify issues that were of concern to the school and to decide on the actions that they should take to deal with them.

This definition of the task had a number of important consequences. First, it led many of the teachers to reflect on their daily classroom practices, in order to clarify their aims with respect to children's language development and to evaluate the activities that they organized to achieve them. Secondly, it led them to recognize that there were a number of assumptions that needed to be reexamined in the light of empirical evidence, and that it was incumbent on them to devise ways of obtaining this evidence. Thirdly, the formulation of the language policy became a collaborative writing assignment which, in itself, provided further insights into the various processes involved in writing, which in turn could serve to inform the teaching of writing.

Despite these very real achievements, however, the second year started less auspiciously. As a result of a considerable turnover of staff and for political reasons within the school, there was considerable unwillingness to continue the whole-staff meetings and so no meetings were held in the first two terms. In the meantime, however, the senior research officer responsible for collaborative research in the school continued to collect data in the classrooms of the three participating teachers, and out of the good working relationships that developed grew two collaborative projects, both of which involved

writing, albeit indirectly.

These two projects, and the testimony of the teachers involved to the value of engaging in such inquiries, were to lead to a much more satisfactory mode of partnership between researchers, teachers and administrators during the third year. One of the teachers asked to continue his involvement with the project and both he and the teacher of the eldest cohort of project children agreed to pursue inquiries that would lead to their participation in the symposium planned for the IRA Convention in April of the third year. However, perhaps the most important outcome was the effect on the Principal. Impressed by the benefits of collaborative inquiry for the teachers involved, he decided to set up a curriculum study group within the staff, chaired by one of the teachers, to promote classroom inquiry and to explore the implications of such inquiry for the school curriculum as a whole. He also agreed to give a report on these developments as a member of the symposium panel.

During the course of the third year this curriculum study group met a number of times and began to talk through the role it could play. Not surprisingly, given the lack of a readily available model and the internal political climate of the school, this was not an easy matter but, as the year progressed, a plan was developed that would involve a researcher working part-time in the school as a catalyst and resource for the various inquiries that were envisaged. At the centre of the plan was the Principal's idea that classroom inquiry could be the basis for the three-yearly review of those teachers who opted for this mode of evaluation. This incorporation of classroom inquiry into the administrative structure of the school, together with the inquiries undertaken on a voluntary basis by interested teachers, was to provide the basis for an inquiry-orientation to curriculum planning within the school more generally. Accordingly, a proposal for funding was drawn up and presented to the Board. Unfortunately, however, because of a change in the political climate following the local elections, no financial support was forthcoming. And without the necessary resources, the initiative was still-born.

Despite the ultimate failure of this attempt at school-based collaborative research, a great deal of value was gained from the experience - not least the personal and professional growth of all who were closely involved. Testimony to this effect is to be found in the presentations of the participants in the symposium mentioned above. We also learned a great deal about the conditions that can facilitate or constrain the development of a collaborative inquiry-orientation within a school.

Some of these conditions have to do with the way in which the partners from outside the school, in this case the university researchers, approach the school personnel. Where professional development is traditionally seen in terms of a hierarchical implementation model, misunderstandings can easily arise when outsiders do not adopt the expected role of experts with a package to promote. The researchers, for their part, must also recognize that they have to overcome a deep-seated mistrust, based on a long tradition of unequal partnership. To negotiate a more collaborative relationship is therefore difficult and takes time but, if it can be achieved, is extremely rewarding.

Central to this negotiation is the stance of the Principal. In the present instance, despite his concern to act as a curriculum leader within the school, the Principal's initial approach, as he would be the first to acknowledge, was an administrative one. To bring about change, he believed, teachers should be required to attend staff meetings after school hours so that they might be instructed in more effective practice. Not surprisingly, this approach met with resistance. Over time, however, he came to see that collaborative inquiry requires a more democratic ethos and that teacher

involvement, if it is to be empowering, must be undertaken by choice rather than as a result of administrative coercion. As he put it in his presentation: 'It took some time at [this school], or at least with me, to see the evidence of the claim that expertise develops most effectively when we become active constructors of our own knowledge. And, to do so, opportunities must be provided to share in the responsibility for the selection, organization, and evaluation through which knowledge and competence are acquired'. The curriculum study group was the Principal's attempt to create such an opportunity.

Just as the administration in the school has to adopt a different stance to teachers' professionalism, so do teachers have to develop the confidence and willingness to look critically at their classroom practices and the assumptions underlying them, acting as their own evaluators rather than being dependent on others to perform this function for them. They also have to be willing to open their classroom doors and share what they are learning with their colleagues in a spirit of open collaboration. Once again, such an attitude takes time to develop when the general educational climate has tended to ignore the expertise that arises from reflective practice.

More is required, however, than a change in attitudes. Systematic collaborative inquiry leading to a coherent policy of planned change requires resources and the time for sustained discussion. Without these, progress is dependent upon teachers' willingness to take on additional tasks and responsibilities on top of an already heavy workload. All those concerned in the initiative in this school gained considerable personal satisfaction from their recognition of professional growth, it is true. But this is not an adequate basis for the institutionalization of classroom inquiry as a school's mode of staff development and curriculum renewal. For this to occur, there must be institutional support as well as enthusiasm and dedication on the part of those concerned. A major reason for the failure of this initiative to develop in the way all of us had hoped was the lack of this support from the Central Office.

Thus far, this account of our attempts to promote collaborative inquiry on a school-wide basis may seem to have stressed the difficulties to be overcome rather than what was achieved. However, the latter should not be underestimated. In the first place, a number of individual teachers have gained considerably by taking up the invitation to become partners in inquiry. Furthermore, to varying degrees, all four schools have felt the benefits of these teachers' involvement. Nor have the benefits been confined to these four schools. As a result of the various public presentations made by those involved, teachers and administrators in other schools and jurisdictions have been inspired to explore this mode of professional development for themselves. In this context, it is particularly gratifying to be able to report that the two researchers who were most closely involved in the school-wide initiative described above have been able to draw upon this experience in their roles as researcher-teacher and consultant in another Ministry-funded project being carried out in four schools in the jurisdiction of the Peel Board of Education. With a better understanding of the necessary conditions and the support of precisely the sort of resources that were unavailable in the present project, it has been possible to create a climate in which more than fifty teachers have begun to undertake classroom inquiries and in which each school, in its own way, is developing a corporate inquiry orientation to the substantive topic of the project: 'Talk: a medium for learning and change'.

With the benefit of hindsight, it is possible to argue that the attempt to promote the sort of collaborative inquiries just described should have been the central element in the research design from the beginning. Certainly, where they were successful, these inquiries enabled all three strands of the project to be integrated in ways that were mutually beneficial. However, collaborative inquiry can only develop when an interest

in the topic to be addressed is shared by both the partners and a context is required in which this common interest can emerge and develop. Furthermore, when a substantial number of partnerships is involved, it is helpful, if not necessary, to have an over-arching theme. In the present project, these conditions were provided by the ongoing longitudinal study of the language and learning of children in multilingual classrooms and schools. Without this study, or some similar initiative, as a starting point, it would have been difficult to bring the teachers and researchers into the sort of working relationship within which collaborative inquiries can develop.

As with the design of the longitudinal study, however, our thinking about the issues to be addressed within the broad theme of language and learning did not remain static but underwent development and revision, both as a result of reading and reflection, and in response to what was being learned from the empirical investigation itself. In the following section, therefore, we shall give a brief account of the evolution of our thinking about language and learning in education.

Conceptualizing the Issues to be Investigated

When the project began, there were three principal investigators, each with her or his own interests and areas of expertise within the broad area to be investigated. The intention was to use the data collected from the longitudinal study of language and learning in multilingual schools to explore a wide range of issues in a complementary fashion, each investigator being responsible for those of particular interest to him or her.

From the beginning, however, there were difficulties with the scope of the project, since almost everything that happens in the classroom could be seen as potentially relevant. With too diffuse a definition of language and learning to guide their observations, the field researchers found it difficult to know what to attend to in the multi-faceted interactions through which the curriculum is enacted. It quickly became apparent, therefore, that there would have to be a focus for each observation if they were to avoid being distracted by the surface characteristics of the observed behaviour. The solution adopted, therefore, was to select a number of focuses for successive rounds of observation which could be repeated on a cyclical basis. However, as we discovered, this also had its disadvantages, not least in the lack of continuity of perspective for the field researchers.

With the change in personnel during the first year, and particularly with the withdrawal of two of the principal investigators, it became doubly necessary to revise this plan. If we were to avoid fragmentation, it was clear, there would have to be a unifying theme that would provide a continuing focus for our activities for the remainder of the duration of the project. For a variety of reasons, 'literate thinking' was what gradually emerged as this unifying theme.

A number of factors led to this choice, not least of which was the decision to include an intensive study of writing as one of the objectives of the project. As already mentioned, the improvement of writing was the topic that had been proposed by the Principal for the school-wide collaborative activity that was described at the end of the previous section. It was clear, therefore, that a focus on writing could provide a link between the two original strands of the study.

In fact, the senior researcher responsible for the writing study had, prior to her appointment, been collecting data on the writing development of eighteen children in the very school that had shown an interest in writing; she had also been involved in the staff writing workshop initiative. As a basis for the first of these activities she had constructed a theoretical framework for investigating the relationship between a child's written text and the events involved in its production, including any oral interaction

with teacher or with peers and the use of the resources available in the classroom. This framework was to prove invaluable in conceptualizing the overall design of the study, which was set out in Figure 1 above.

Equally important for the developing focus was the framework for thinking about writing which she had developed for the writing workshop. This was offered, in the form of a handout, at the first staff meeting. It started as follows:

> Why focus on writing? Because writing, more than any other aspect of the curriculum:
>
> - integrates all the communication skills with thinking in the construction and communication of knowledge;
> - makes the processes of thinking available for inspection and reflection and therefore amenable to guided development;
> - encourages ownership by the child and maximises the opportunity for individual response by the teacher.

The second question was: 'What are the conditions that foster the development of writing?' Some major headings for consideration included: 'Meanings to Communicate', 'the Writing Environment', 'Audience Response', and 'Writing Across the Curriculum'. Here, in an embryonic form, were many of the ideas that were to become central to both the analysis of the longitudinal data and the collaborative inquiries with teachers.

A second strand contributing to the emerging focus on 'literate thinking' was the exploration, in which several members of the team were involved, of the nature and consequences of literacy. Several of us attended meetings on literacy and education and the Symposium on Orality and Literacy in June 1987, both organized by David Olson through the McLuhan Centre. Ideas arising from these meetings and from less formal discussions were also being developed in papers written by members of the project team for conference presentations (Shechter and Schecter, 1986; Wells, 1987, 1988; Wells & Chang, 1988). Literate thinking, we were coming to see, was a way of using language as an instrument for representing and working on one's experience in the construction of more formalized knowledge.

The following paragraphs, taken from the Second Annual Report on the Transfer Grant, May 1987, offer an early formulation of the theoretical position that was being developed.

> From the very beginning of institutionalized education, it has been recognized that there is an intimate connection between being literate and being educated. Even where the aims of educational provision have been severely restricted, as in the early attempts to provide universal education, those aims have always included learning to read and write. By the same token, the success or failure of public education is most frequently discussed in terms of literacy or illiteracy. However, it is only in the last decade or so that the precise contribution of reading and writing to intellectual development has begun to be systematically investigated and already, on the basis of what has been discovered, it is clear that the relationship is not a simple one (cf., for example, the collection of papers edited by Olson et al. (1985)).

For those of us whose intellectual development has taken place in a literate society, it seems self-evident that our intellectual achievements are dependent on the ability to read and write. And, at one level, that is certainly true. Without the knowledge that we have gained by reading, we should be much less well-informed; without the ability to write, we should be unable to take notes or summarise what we have learned, nor would our ideas achieve the wide circulation that publication makes possible. But such an assessment of the contribution of reading and writing both under-values and over-values their significance. On the one hand, much more is involved in using written language as a facilitator of thinking than is brought out by an emphasis on the archival function that written language serves in giving a permanent representation to information so that it can be widely disseminated. And, on the other hand, it would be arrogant to assume that, amongst those who, for whatever reason, do not learn to read and write, there are none who demonstrate the ability to think critically and constructively on a wide variety of issues, including issues demanding a high level of abstraction.

Nevertheless it is this characteristic of the permanence (relatively speaking) of what has been written that is significant in making written language potentially such a powerful instrument for the development of thinking - for functioning as what Bruner (1972) calls a 'cognitive amplifier'. The existence of a text - a fixed verbal formulation - facilitates the recognition of the distinction between what was actually 'said' and the various meanings or interpretations that can be derived from it (Olson, 1986). As a result, readers of texts are encouraged to ask about the 'facts' contained in them, the adequacy of the evidence to support them, the relationship of these facts and evidence to their own experience, and so on. Such talk also leads quite naturally to the development of a metalanguage for talking about texts and about the thinking associated with their production and interpretation (Olson and Astington, 1986). Written texts thus invite a discriminating, critical response, in the course of which the reader may extend and sharpen his or her understanding of the matter concerned whilst, at the same time, developing these language-related thinking skills more generally.

However, although reading texts written by others may provoke the reader to think or feel more profoundly and discriminatingly, reading itself leaves no record of its results to which future reference may be made. For that, it is necessary for the reader to become a writer and attempt to formulate in his or her own text the understanding that has been gained. And then it is the malleability of written language that comes into focus as a facilitator of thinking and feeling. What has been written can be critically read, in the same way as can a text by another person, in order to see what it means; but it can also be rewritten, in order to develop ideas that were initially only incipient or to clarify those that were imprecise. Furthermore, the record that is left of these mental processes - that is, the written text - can be the basis for discussion with others, in the course of which another reader's response can be taken into account. In other words, by writing, rereading and rewriting, and by discussing the emerging text with others, one can work on one's own thinking in a conscious and deliberate manner.

From an educational perspective, then, what is important about reading and writing is not so much the specific information that is gained through engaging in these activities as it is the development of a way of thinking: the

building up, metaphorically speaking, of a set of mental muscles that enable one effectively to tackle intellectual tasks that would otherwise be beyond one's power. However, this way of thinking is not dependent on reading and writing: to a considerable degree it can also be deployed in speech. When the appropriate conditions arise, literate people can 'speak a written language'; and so, too, can those who are still in the process of learning to read and write.

To focus on 'literate thinking', then, is to draw attention to the centrality of literacy in education, but not literacy conceived simply in terms of the skills of coding/decoding print or those involved in the transmission of information through written texts. What is emphasized, rather, is the conception of literacy as thinking which deliberately makes use of language, whether spoken or written, as an instrument for its own development.

If this general line of argument is correct, there are very substantial implications for the way in which the teaching of literacy should be approached in school and, indeed, there are similar implications for the curriculum as a whole. First, and perhaps most important, is the renewed recognition that language, whether spoken or written, should be seen as a means not an end. That end is the development of the ability to think, both critically and creatively, and to be able to collaborate with others in so doing. Second, is the need to recognize the active nature of students' participation in the tasks that they are asked to undertake: even though the teacher may initiate an activity, the construction and refining of meaning can only be carried out by each student as agent, although these processes may be greatly facilitated through interaction with other agents. The goal, therefore, must be 'intentional thinking' (Bereiter and Scardamalia, in press), which involves recognizing the student's ownership of the task and encouraging him or her to take on the responsibility for its planning and execution. Third, it implies an attitude to curriculum content which is concerned more with depth of understanding than with simple coverage, and one which places more emphasis on the processes involved in the construction of knowledge than on the actual possession of the knowledge itself (Wells, 1985). Those who have acquired the sorts of mental abilities that are developed through literate thinking will be able, when necessary, to tackle new areas of content for themselves because they have acquired the necessary strategies and procedures; those without these abilities, on the other hand, will find new content difficult and daunting and will remain forever dependent on others to do their thinking for them. Where the major aim in curriculum planning, therefore, is to develop independence in thinking, more will be gained by working on a small number of related topics in considerable detail, exploring possibilities and making connections through recursively engaging in reading, writing, talking and thinking, than by acquainting students with a much wider range of content at a more superficial level.

In proposing literate thinking as the focus for both observation and collaboration we are, in effect, identifying an issue that we believe should be at the centre of educational decision-making, whether at ministry level, in the staff room or in the moment-by-moment choices that teachers and students make in their engagement with the curriculum. We recognize that in these few paragraphs we have done no more than characterize the goal and indicate the general direction in which it seems likely to be found. To fill in the map will be the aim of subsequent reports.

The key phrase in this definition of literate thinking is 'the conception of literacy as thinking which deliberately makes use of language, whether spoken or written, as an instrument for its own development'. In other words, to be literate is defined not as the possession of certain skills or knowledge, but rather as a disposition to use language as a means to achieve intellectual ends; not as a preserve of the language arts specialist, but as a 'technology for the empowerment of mind', as Bruner puts it, in all areas of the curriculum.

Armed with this rather abstract definition, we began to review the data from the observations we had made in order to identify the tasks and classroom conditions that seemed most effectively to promote literate thinking. Each member of the team selected putative examples and, working collaboratively, we began to develop a scheme that could be used to analyse the observational records from this point of view. The results of this work are presented in Section X below.

At the same time, these slowly crystallizing ideas were carried into the various collaborative inquiries that were being conducted with some of the teachers. Although very different in their content, these inquiries had one thing in common: they all involved children working in groups towards some goal. Whether the over-arching theme was science, social studies or literature, therefore, the observations that were made of groups at work yielded evidence of the ways in which group work could provide opportunities for literate thinking and of the conditions that seemed best to promote it. As our developing theory predicted, literate thinking could be observed in the oral as well as the written medium. Most powerful, however, we found, was the situation in which a text - either pre-existing or under construction - provided the focus for the collaborative talk.

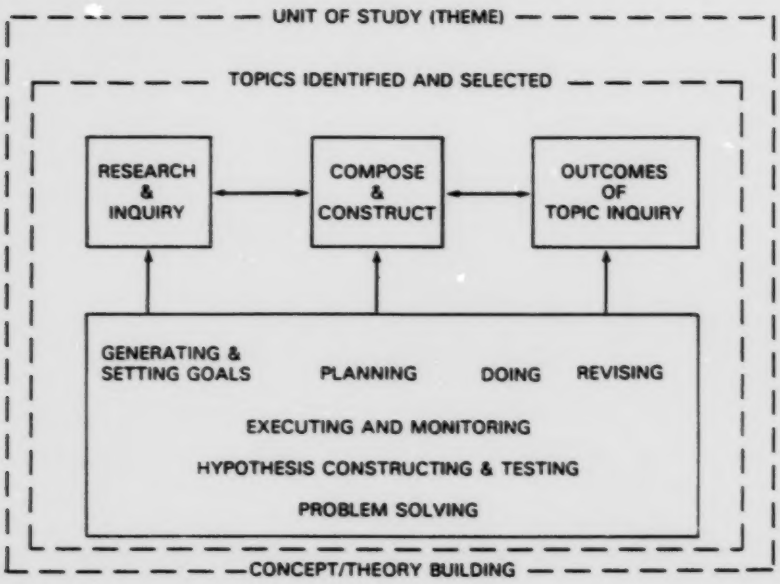
As we talked about these observations with the teachers and amongst ourselves in our weekly project meetings, we began to recognize that, not only does literacy include certain uses of oral language (cf. also Heath, 1986; Langer, 1987), but also that it may occur in relation to other symbolic systems besides natural language. Viewed from this perspective, we came to see that such artefacts as the diagrams, pictures and models that students were creating in carrying out their projects were functioning, in ways very similar to written texts, as representations of what they knew and as the focus for critical and constructive discussion (Chang & Wells, 1988).

From this insight, it was only a short step to the recognition that the video-recorded observations that we were making in collaboration with the teachers could function somewhat analogously, as texts of classroom practice. By viewing and reviewing them together, and by engaging in critical and constructive discussion of alternative possible interpretations of what was going on and of suggestions for change that might create better opportunities for learning, we were working on these video recordings in ways very similar to the ways in which a writer works on the draft of a written text that he or she is composing. Furthermore, when - as in the case of the presentations made in the IRA Symposium and at subsequent conferences - teachers and researchers, either together or separately, constructed written representations of what they had come to understand in order to communicate that understanding to others, the theoretical importance of literate thinking became an experienced reality.

In the course of writing about two of these collaborative inquiries, a model began to emerge of the close relationship we had observed between the processes involved in writing and those involved in inquiry more generally (Figure 2). Formulated originally to provide a framework for thinking about the organization of a curriculum unit to provide opportunities for group work that would encourage literate thinking, this model

- as models often can - became generative of further understanding. For what we realised was that it also captured what we were doing in our collaborative inquiries, as we reflected upon initial observations, drew upon our reading and past experience to help us construct an interpretation of these observations, sharpened the focus of the inquiry and planned how to proceed. As further data, in the form of observations, interview responses, students' work, etc., were collected and analysed, an attempt was made to make sense of them in the light of the topic question and a tentative answer proposed or a decision made to revise the question or the methods used to answer it. But perhaps the most important insight it gave us was the crucial role of the third major component, that of creating a representation of the outcomes of the inquiry for communication to others. For what this requires is that one evaluate what one now understands and to discover what one still needs to understand in order to be able to present what one has learned in a form that will be intelligible and convincing to one's intended audience.

Figure 1. Framework of Literate Conditions for Learning



Another dimension of our thinking about the relationship between language, literate thinking and learning in the classroom that was given sharper focus by this model and the recognition of the different levels at which it could be applied was the notion of a community of inquirers. Just because people work in the same location or even in relation to the same enterprise, it does not follow that they form a community. Yet, from our observations over the three years in some 30 different classrooms, we had formed the impression that a feeling of community was one of the characteristics of those classrooms in which literate thinking was most likely to occur. The relationship seemed

to work in both directions: where children were engaged in active inquiry and the collaborative construction of meaning this tended to promote a sense of the class as a community; but, equally, where this sense of community existed, it facilitated active collaborative learning (Wells, Chang & Maher, in press).

Just as we had seen that the model of the literate conditions for learning applied to other levels beyond the classroom, so we came to see that the same was true of the notion of communities of inquirers. The research team itself was another such community, as potentially were the teachers in each school. Indeed, the attempt to foster the development of schools as centres of inquiry (Schaefer, 1967) became one of the aims of our collaborative work in the four schools. At the same time, we recognized that these were overlapping communities: the teachers were crucial members of their classroom communities; they were also members of the smaller communities that came into being around specific inquiries. The researchers, whilst belonging to these ad hoc inquiry groups, formed a community of their own and were also members of the larger university community. Viewed from this perspective, learning, and the language and literate thinking through which it took place, needed to be seen as a social interactive process as well as an individual activity.

A conviction of the importance of interaction between adult and child, in the classroom as much as in the home (Wells, 1981), was of course one of the principles on which the project was based. But as we began to study recordings and transcriptions of interactive episodes in the classroom, a conviction was no longer sufficient: we found we needed a theory.

This we found in the work of the sociohistorical school, founded by Vygotsky and his students and followers (Vygotsky, 1978; Wertsch, 1985). In Cole's (1985) account:

> [this] was an approach which denied the strict separation of the individual and its social environment. Instead, the individual and the social were conceived of as mutually constitutive elements of a single, interacting system; cognitive development was treated as a process of acquiring culture. The normal adult cognitive processes...were treated as internalized transformations of socially prevalent patterns of interpersonal interaction.
>
> Vygotsky and his students called their approach a "sociocultural" or "sociohistorical" theory of psychological processes. The basic idea was expressed in the "general law of cultural development", where Vygotsky proposed that any higher psychological function appears "twice, or on two planes. First it appears on the social plane and then on the psychological plane. First it appears between people as an interpsychological category and then within the individual child as an intrapsychological category." (p. 148)

Central to this theory of the internalization of higher mental processes was the concept of the "zone of proximal development", that is to say the zone of performance which is beyond what the learner can do alone but in which he or she can achieve success with the help of an adult or in cooperation with peers. According to this theory, teaching should be conceived of as the creation of conditions in which the learner works in the zone of proximal development. As Vygotsky (1978, p.89) put it, "the only good learning is that which is in advance of development".

Based on this notion of learning as the appropriation of mental functions through participation in their enactment in joint activities, we proposed that:

> there are three modes of interaction that should be provided for in the classroom, in addition to the expert's exposition. First, the sharing of understanding - and ignorance - among learners, and between learners and experts, in order that they may mutually support and act as catalysts to each other in their knowing and coming to know; second, tutorial talk, in which the individual students benefit from expert guidance that is responsive to their particular needs; and third, opportunities for reflecting and communing with themselves through inner speech, reading and writing" (Wells, Chang & Maher, in press).

By a happy coincidence, as we were trying to integrate these different theoretical perspectives, an invitation was received to contribute to two conference symposia on the theme of "Extending Vygotskian Theory". This invitation provided an incentive to pursue these ideas further, using as data episodes of interaction in classrooms in which we had been engaged in collaborative inquiries with the teachers. In the resulting papers (Chang and Wells, 1989; Wells and Chang, 1989), we attempted to make three contributions to this developing theory. First, we tried to show the connection between our conception of literate thinking and Vygotsky's characterization of school learning as "the assimilation of the fundamentals of scientific knowledge" (1978, p.84). Secondly, by analyzing the joint construction of meaning over the course of an extended episode of collaborative talk, we tried to show that the learning that takes place through interaction results from the extension and modification of existing knowledge in order to achieve shared understanding with one's co-participants. Thirdly, we argued that the Vygotskian concept of learning in the zone of proximal development needs to recognize the importance of factors which shape the interaction, over and above the cognitive, for example, institutional factors such as role relationships, and interpersonal factors such as individual differences in mental and affective relationships.

The arguments in these papers were based on observations of children engaged in curricular activities. However, they might equally have drawn on data from the collaborative inquiries that were conducted in the other communities referred to above. For we have become convinced that the same principles apply, whether the learners are school-children, teachers or university researchers. Looking back over the experiences of the last four years, it is this conviction of the essential similarity between the various participants in the project in the conditions that have facilitated their learning that has intertwined the various strands of the original design and given coherence to the whole. Children, teachers and researchers have each, to varying degrees, extended their understanding by working in their zones of proximal development in the course of participating in inquiries in collaboration with peers and others more knowledgeable than themselves.

The project can equally be understood in terms of Vygotsky's theory from a cultural-historical point of view. Both the negotiation of relationships within the research team and between the team and the schools and also the increasing emphasis within the research design on collaborative ethnography can best be understood in terms of the micro-history of interactions between members of different cultures. From this point of view, the project has involved an extraordinarily rich diversity, both in terms of the ethnocultural backgrounds of the members of the research team, the children in the schools and their families, and also in terms of the professional and intellectual affiliations of the potential partners in collaborative research. This diversity was certainly not without its attendant complications, as was glimpsed in earlier sections of this review. However, in that respect, the history of the project offers a valid reflection, in microcosm, of the complexities of the larger educational scene in a multicultural

society. But diversity of beliefs, values and attitudes, when recognized and acknowledged, can also provide a rich resource for a society that is seeking new and better ways to provide opportunities for social and individual growth and development.

In the papers that follow, written from their different sociohistorical perspectives by individual researchers and teachers and by collaborating groups, both these themes will be heard. In some, it is the failure, within the constraints imposed by time and resources, to reconcile alternative expectations and intentions that appears to be the dominant note. In others, it is the satisfaction at having achieved a new and empowering understanding through collaborative action and reflection that is heard most clearly. But, in all, there is an attempt to understand the processes at work and to point to directions in which change might fruitfully be attempted.

Despite all the attendant difficulties and disappointments, therefore, the inquiries reported in this collection of papers, together with the varous new ventures that have been inspired by presentations already made about these inquiries, provide convincing evidence of the value, both for individuals and for educational communities, of attempting to effect change through collaborative research.

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LONGITUDINAL STUDY OF 72 CHILDREN

William Baird

Over the course of three school years beginning in the Fall of 1986 and ending in the Summer of 1988 we have collected a massive amount of data about 72 children located at four schools in the Toronto Board of Education. These data included classroom observations, interviews with parents, teachers and the students themselves, and assessments of academic achevement and language proficiency.

The original aim of the longitudinal study was to try to gain a better understanding of the determinants of differential school progress by children from different ethnolinguistic backgrounds through a quantitative analysis. For reasons expressed in the introduction of this report, the emphasis in the project's methodological approach has shifted from a reliance on quantitative to qualitative analysis. However, numerical data can play a useful function in qualitative research by providing, on the basis of descriptive statistics, a framework through which comparative statements and generalizations about our sample of subjects can be made.

Sample Selection

The original sample of 72 children were selected on the basis of grade (SK, grade 2 and 4) and ethnolinguistic group membership (Chinese, English, Greek and Portuguese). Six students were selected from each classroom: two Chinese, two English and two either Greek or Portuguese. This sampling procedure was dictated by the fact that, while Chinese and English students were found at all four schools involved with the project, Greek students were concentrated in the East End of Toronto and Portuguese students in the West End. As Table 1 shows, this resulted in a skewed representation of subjects from the four ethnolinguistic groups with the Chinese and English being double the Greek and Portuguese. Also, while the Portuguese subjects were evenly split between the two West End schools, the Greek subjects were overwhelmingly concentrated in one school ("L").

An attempt was also made in the sampling to include equal numbers of girls and boys. While this was extremely difficult to do for each individual classroom, the overall objective was generally met, as indicated by Table 2. In all, 35 girls and 37 boys were included. Fairly equal proportions of girls compared to boys are maintained for each school and ethnolinguistic group. The only noticeable exception concerns the Greek group which contains 4 girls and 8 boys. However, there were very few gender effects in our data results, so that the distribution of girls to boys does not present a critical concern in interpreting the results to be presented in the following sections.

A large amount of subject attrition occurred, as students moved or were retained or double-promoted. Of the original 72 subjects, 42 (58%) were followed through the entire course of the project; that is, over three school years. Subjects from the same ethnolinguistic group were chosen as replacements whenever someone had to leave the project. Our final sample of 72 subjects includes all the full-term subjects plus the

replacements. In addition, we were denied access to one classroom in the third year (School "L", cohort 1, grade 2). As a consequence, we were not always able to collect the full array of observational, interview and assessment data for each and every subject. For each of the statistics to be reported below there will be varying degrees of missing data; the total number of subjects being reported will be indicated in each table.

Table 1

Number of Subjects within each Ethnolinguistic Group and School

	ETHNOLINGUISTIC GROUP				
SCHOOL	Chinese	English	Greek	Portuguese	Total
"E"	6	6	0	6	18
"C"	6	5	0	7	18
"L"	3	4	11	0	18
"B"	9	8	1	0	18
Total	24	23	12	13	72

Table 2

Number of Female and Male Subjects by Ethnolinguistic Group and School

	ETHNOLINGUISTIC GROUP				
SCHOOL	Chinese	English	Greek	Portuguese	Total
"E"	4F,2M	2F,4M	----	3F,3M	9F,9M
"C"	2F,4M	4F,1M	----	4F,3M	10F,8M
"L"	2F,1M	2F,2M	4F,7M	----	8F,10M
"B"	5F,4M	3F,5M	0F,1M	----	8F,10M
Total	13F,11M	11F,12M	4F,8M	7F,6M	35F,37M

I. SOCIAL BACKGROUND AND FAMILY ENVIRONMENT

In this section we will summarize the most important information contained in the interview of the parents and recorded in the Household Census and Biographical Data documents. While some of the information could easily be represented in a numerical form (e.g. length of residence in Canada), the information contained in some more open-ended questions had to be coded according to general categories which encapsulated the essential gist of the responses. We constructed these category schemes inductively, by first reading all the responses, and then formulating categories which best represented the major distinctions apparent in the responses.

There are four possible grouping factors in which the interview data could be analysed and presented: Gender, Cohort, Ethnolinguistic Group and School. We performed a preliminary analysis of the interview data for each of these factors and found that no group differences were found for Gender and for Cohort; therefore they have been left out of the results reported below. Ethnolinguistic Group membership revealed the most numerous statistical differences; and School differences were found only in a few cases. We will be omitting discussion of the "School" results because these do not really reflect school effects. What we are dealing with here are the possible differences, for example, between the six grade 1 students from one school compared to the grade 1 students from the other schools. Those differences probably have more to do with the students selected than with some aspect of the school environment. Since we could never be sure to what we should attribute these differences, we will not be reporting results organized around the "School" grouping.

We wish to state an emphatic caution in interpreting the results to be reported. Given the small size of our sample, and the practical constraints which prevent a truely random sampling of students within each of the stated ethnolinguistic groups, it is clear that we cannot directly generalize to the general population. However, we can discuss the results in terms of *our* sample of Chinese, English, Greek, and Portuguese students. We have, as will be reported, consulted the current literature on ethnicity, education and socio-economic status to judge whether our sample of students and parents are representative of the general population within each ethnolinguistic group. Almost all of this literature is based on macro-sociological research, mostly using census data. The value of our approach is to offer a more micro-analysis, both quantitative and qualitative, of the experience of schooling by a sample of students from four ethnolinguistic groups.

1. Length of Residence in Canada

All of the parents from the Chinese, Greek and Portuguese groups emigrated to Canada at some point in their lives. Tables 3 and 4 present the average length of residence in Canada by fathers and mothers respectively. The missing Chinese father and mother is due to the fact that the subject involved was living with his grandparents while his parents lived in Hong Kong. The data for one set of Portuguese parents was missing; as well, one mother was deceased. We can see that not all of the English parents were Canadian born. These all originated from Commonwealth countries in which English is the primary official language.

Because of the fact that our sample of students consisted of three different age cohorts, we could not simply take the length of residence reported at the time of the interview. What we were interested in here was a measure of the amount of time parents had had to adapt or acculturate to a new environment before their child entered the school

system. So, for example, parents whose child was in grade 4 and who had resided in Canada for 10 years, had therefore resided here for 5 years before their child entered Senior Kindergarten. They would be in the same position, therefore, as the parents who had resided in Canada for 5 years and whose child was in Senior Kindergarten at the time of the interview. The length of residence was adjusted, therefore, for those parents whose children were in grade 2 or 4 at the time of interview to correspond to the length of residence in Canada when their child was in Senior Kindergarten.

The results show no significant differences for fathers, and a significant difference for mothers, between ethnolinguistic groups. The Chinese mothers involved in our study had resided in Canada for fewer years than the general mean, while those English mothers who were not Canadian-born had resided in Canada a few more years than the general mean. As the general mean was 11 years, we would expect that the majority of our students were Canadian-born, and this is verified by the figures listed in table 5. All of the English and Greek students were Canadian-born, only 3 of 13 Portuguese students were born in Portugal (including the Azores), and 7 of 24 Chinese students were born in Asia. Although all our non-English children were born of immigrant parents, the large majority of them are Canadian-born and have not themselves experienced the process of immigration. Typically, such children acculturate to the new social and linguistic environment more rapidly and easily than their parents, and indeed in many cases are the primary mediators of the new culture for the family.

Table 3

Average Fathers' Length of Residence in Canada

ETHNOLINGUISTIC GROUP				
Chinese	English	Greek	Portuguese	Grand Mean (Sd)
9.9	13.5	14.8	10.4	11.5 (7.0)
N=23	N=4	N=12	N=12	

Table 4

Average Mothers' Length of Residence in Canada

ETHNOLINGUISTIC GROUP				
Chinese	English	Greek	Portuguese	Grand Mean (Sd)
8.4	15.7	12.8	11.4	11.1 (7.1)
N=23	N=9	12	11	

Table 5

Average Length of Residence in Canada for Students born outside of Canada

ETHNOLINGUISTIC GROUP				
Chinese	English	Greek	Portuguese	Grand Mean (Sd)
1.3	---	---	2.3	1.5 (1.3)
N=7	N=0	N=0	N=3	

2. Socio-Economic Status (Occupation and Education)

We adopted the classification scheme for occupations originally developed by Pineo et al (1977) and compressed by McRoberts (Boyd et al, 1985). This scheme builds upon the official "Canadian Classification and Dictionary of Occupations" developed by the federal Department of Manpower and Immigration (1971), and used in reporting the results of Canadian Censuses by Statistics Canada. We used this manual to code the occupation reported by the parents in our study as accurately as possible from the descriptions. Next, the coded occupations were translated into one of the fifteen occupational categories listed by Pineo et al (1977) using their full list of specific occupations by categories. Then we further translated the identified category into the associated category in McRoberts' scheme which is simply a further regrouping of the original scheme to yield fewer categories. The Pineo et al and McRoberts classification categories are as follows:

McRoberts	Pineo et al.
8. Professional	Self-employed Professionals
	Employed Professionals
7. Managers	High-level Management
	Middle Management
6. Supervisors	Supervisors
5. Upper White-collar	Technicians
	Skilled clerical-sales-services
	Semi-professionals
4. Lower White-collar	Semi-skilled clerical-sales-services
	Unskilled clerical-sales-services
3. Foremen	Foremen
2. Upper Blue-collar	Skilled crafts and trades
1. Lower Blue-collar	Semi-skilled manual
	Unskilled manual

We changed one of McRoberts' classifications. He placed semi-professionals (e.g. school teachers, social workers, policemen) within the top Professional category. Sociologists who suggest a more class-based analysis of socio-economic status, however, equate semi-professionals more with technicians, and therefore with the Upper White Collar category

(Veltmeyer 1986). Finally, to the eight occupational categories we added the category Unemployed. The number listed beside each superordinate category was the numeric score assigned (Unemployed = 0).

We formulated a 7 category scheme to code parent's level of education as follows:

0. No education
1. Some Primary
2. Full Primary
3. High School
4. College (Community College, some University)
5. University (completed undergraduate)
6. Graduate (post-graduate work: M.A. or Ph.D)

We had originally distinguished between some and completed high school, but we found that respondents often did not clarify what level of high school they had achieved. There seemed to be more of a status issue attached to completion of high school compared to completion of primary school so that no respondent admitted to partial completion of high school. In some countries (e.g. Portugal, Hong Kong) publicly-funded education ends with completion of junior high school.

We used this categorical scheme instead of years of schooling because of the differing programs in the countries of origin. For example, before the early 1970's, Portugal had four years of concentrated primary school. Invariably, research into the amount of schooling of foreign-born Canadians has usually shown the Portuguese to have the least amount of schooling in terms of number of years. Obviously this can be misleading if the nature of the program in the country of origin is not made explicit. For our own coding, the senior researcher involved interviewed the field workers about the educational system in Greece, Portugal, Hong Kong and Indo-China so that the parents' answers to this question would be accurately coded.

Table 6 and 7 present the data on father's level of occupation and education, respectively. Looking at the totals we can see that a substantial number of fathers (22), or just over 1/3, worked in lower blue collar jobs. The rest of the fathers were evenly distributed over the remaining categories. A significant chisquare was found for ethnolinguistic group membership. The Greek and Portuguese fathers in our sample were concentrated in lower occupational levels, the English fathers in higher level occupations, and the Chinese fathers evident at both extremes. In a recent analysis of 1981 census data concerning ethnicity, schooling and class membership, Li (1988) found that Canadians of South European (Greek, Italian and Portuguese) origins were over-represented in the construction and services occupations (e.g. restaurant business, retain, entertainment), that is, in blue collar and low white collar occupations. The Chinese were also over-represented in the services occupations, especially in the retail trade, as many were shop-owners. So our Chinese, Greek and Portuguese samples are quite representative, as it turns out, of their general populations. Because they are still in the great majority across Canada, the British group's distribution across occupations almost exactly matched the distribution of the entire employed population (Li, 1988). Sixty-nine percent of the census respondents labelled as British worked in blue collar or low white collar jobs. Therefore, we must conclude that our sample of English-speaking fathers are not typical of the general population of fathers of British origin, but are concentrated in higher level occupations. It should also be noted, however, that we have data for only 12 out of a possible 23 fathers for the English group; the reason being that 10 of these families are headed by single mothers. By contrast, only 1 of the non-English families was a single-parent family.

Not surprisingly, we find in the educational attainment data (table 7) that the main difference is between the English fathers and the rest of our sample. Chinese, Greek and Portuguese fathers are split between two categories: Full Primary and High School. The English fathers are spread over the higher levels from community college to post-graduate training.

Table 6

Father's Occupation Level

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Unemployed	3	0	0	0	3
Blue C.(low)	10	1	5	6	22
Blue C. (high)	2	0	2	2	6
Foremen	0	0	1	2	3
White C. (low)	2	0	1	2	5
White C.(high)	1	3	0	1	5
Supervisors	3	2	3	0	8
Managerial	0	3	0	0	3
Professional	2	3	0	0	5
Total	23	12	12	13	60

Chisquare = 43.5, d.f. = 24, $p < .01$

Table 7

Father's Education Level

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
None	0	0	0	0	0
Some Primary	0	0	0	0	0
Full Primary	6	0	6	7	19
High School	15	2	5	6	28
College	0	3	0	0	3
University	1	4	1	0	6
Graduate	1	2	0	0	3
Total	23	11	12	13	59

Chisquare = 38.1, d.f. = 12, $p < .01$

Table 8

Mother's Occupation Level

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Unemployed	3	3	1	2	9
Blue C.(low)	12	0	4	5	21
Blue C.(high)	0	0	1	0	1
Foremen	0	0	0	1	1
White C.(low)	2	2	2	1	7
White C.(high)	3	15	1	3	22
Supervisors	3	1	3	0	7
Managerial	0	0	0	0	0
Professional	0	1	0	0	1
Total	23	22	12	12	69

Chisquare = 41.9, d.f. = 21, $p < .01$

Table 9

Mother's Education Level

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
None	0	0	0	0	0
Some Primary	2	0	0	1	3
Full Primary	6	1	4	5	16
High School	11	8	7	5	31
College	3	5	1	1	10
University	1	6	0	0	7
Graduate	0	1	0	0	1
Total	23	21	12	12	68

Chisquare = 23.2, d.f. = 15, p = n.s.

Tables 8 and 9 present the data on mother's level of occupation and education respectively. The significant chisquare for occupation is explainable by the two modal categories of Low Blue Collar and Upper White collar. Most of the non-English mothers are employed in low-level manufacturing jobs. There are a substantial number also employed at the supervisory level; these being usually co-shop-owners with their husbands. Most of the English mothers are employed in Upper White collar jobs. The

main reason for this is that the English mothers in our sample had, as a group, higher education, as indicated in Table 9. Of the 18 mothers who had college-level or better, 12 were English. However, the chisquare did not reach statistical significance. Table 9 reveals that almost half the mothers had high school education, and another quarter had full primary.

Typically, a composite score is assigned to entire households to numerically score socio-economic status for families. To do this we first selected the highest occupation evidenced by either parent. We could not simply combine father's and mother's occupation because of the significant number of families with single parents or only one source of income. To the score for occupation we added the average of the parents' level of education score. If there was only one parent we simply used that parent's score.

The average Socio-economic Status score for each of the ethnolinguistic groups is displayed in Table 10. The one-way analysis of variance produced a highly significant F between groups. Given our analysis of the previous four tables, it should come as no surprise that the English group scores the highest, while the other groups are closely grouped (only 1/3 of a standard deviation apart). In general, the sample of English households we have in our study occupies a higher socio-economic stratum than the sample of non-English groups.

Table 10

Average Household Socio-economic Status Score

ETHNOLINGUISTIC GROUP				
Chinese	English	Greek	Portuguese	Grand Mean (Sd)
6.4	9.8	6.0	5.3	7.2 (3.0)

$F = 12.0$. d.f. $= 3,68$, $p < .001$

3. Size of Household

The relative size of a household has both positive and negative aspects. The negative being that the more dependents a family has, the more pressing it is for both parents to work. The positive aspect is that in more extended families there are more people available for helping the child along, particularly in their schoolwork. Grandparents, sibs, aunts, uncles and cousins are found in many households. Particularly important for the children whose parents immigrated to Canada is the availability of older siblings, or aunts and uncles who are young adults, and who may be more fluent in English than the parents themselves, as well as more knowledgeable about the school system.

Table 11 presents the average household size for the different ethnolinguistic groups in our study. Both Chinese and Portuguese groups have larger households than English and Greek groups. Table 12 shows that the groups do not differ in the averge number ot total siblings or older siblings. Therefore the difference in household size is attributable to differing numbers of adults: grandparents, aunts, uncles and cousins. In general, the Chinese and Portuguese have households consisting of extended families, while the English and Greek have nuclear family households, in our sample.

Table 11

Size of Household

ETHNOLINGUISTIC GROUP				
Chinese	English	Greek	Portuguese	Grand Mean (Sd)
5.5	3.1	3.9	5.2	4.4

$F=3.7$, d.f=3,69, $p<.05$

Table 12

Average Number of Siblings, and Older Siblings

ETHNOLINGUISTIC GROUP				
Chinese	English	Greek	Portuguese	Grand Mean
1.7	1.1	1.5	1.7	1.5
1.2	0.6	1.0	0.8	0.9

p=n.s p=n.s.

4. Family Languages of Interaction

A series of questions in the Household Census and Biographical Data questionnaires asked about the prevalent language of interaction of each member of the household. Reported below in Tables 14 to 17 is the summary of this data concerning father's, mother's, siblings' and other relatives' predominant language of interaction *with the subject child* involved in our study. First, however, Table 13 reports the number of languages spoken in the households. As would be expected, most of the English families speak only English. At least 6 families speak at least one other language (e.g. Jamaican creole, Gujerati, French, and "Jewish"). We expect that one other language would be spoken in the non-English households; these being Greek, Portuguese, and for the Chinese, Cantonese is the predominant dialect. Two "languages" other than English are spoken mostly by the Chinese, consisting of another dialect of Chinese (Mandarin, Hakka or Toisonese), or another Asian language such as Vietnamese or Malay.

Table 13

Number of Languages other than English Spoken in the Household

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Only English	0	16	0	0	16
1 Other Lang.	13	4	12	13	42
2 Other Lang.	11	1	0	0	12
3 Other Lang.	0	1	0	0	1
Total	24	22	12	13	71

Chisquare = 69.4, d.f. = 9, $p < .01$

For Tables 14 to 17 we have included the data for the few English families that speak another language but will not discuss the results other than to mention that 4 out of six of these families speak almost exclusively English. From Tables 14 and 15 we can see that the great majority of Chinese fathers and mothers speak only or mostly "Chinese" in interacting with their children. Two-thirds of the Greek fathers speak both Greek and English in the household, the other one-third speaking mostly Greek. Slightly more Greek mothers speak mostly Greek to their Children (one-half). Two thirds of the Portuguese fathers, and one half of the mothers, speak mostly in Portuguese in the household. Table 16 shows that Chinese relatives speak mostly "Chinese", Greek relatives are split between mostly Greek and Greek and English, and Portuguese relatives speak both English and Portuguese.

Table 14

Father's Language of Interaction in the Household

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Mostly Eng.	1	2	0	2	5
Mostly L1	19	1	4	8	32
L1 + English	4	1	8	3	16
Total	24	4	12	13	53

Chisquare = 20.0, d.f. = 6, $p < .01$

Table 15

Mother's Language of Interaction in the Household

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Mostly Eng.	1	4	0	1	6
Mostly L1	18	1	6	6	31
L1 + English	5	1	6	5	17
Total	24	6	12	12	54

Chisquare = 25.4, d.f. = 6, $p < .01$

Table 16

Relative's Language of Interaction with the Household

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Mostly Eng.	1	2	0	0	3
Mostly L1	17	1	5	0	29
L1 + English	1	3	4	6	14
Total	19	6	9	12	46

Chisquare = 19.4, d.f. = 6, $p < .01$

In contrast to the data concerning the adults' prevalent language of interaction in the household, Table 17 shows that English is the dominant language of interaction between siblings. Slightly more than half of the children speak mostly English in the household, while slightly less than half speak both English and their heritage language. From the interviews it was apparent that the pattern associated with the latter is that these children speak the heritage language to their parents and English to each other. These results underscore the position of these children at the cutting edge of these families' linguistic assimilation. Often, these children are called upon, if the parents are not fluent in English, to translate for them; for example, during parent-teacher interviews.

Table 17

Sibling's Language of Interaction in the Household

Categories	ETHNOLINGUISTIC GROUP				
	Chinese	English	Greek	Portuguese	Total
Mostly Eng.	9	3	7	7	26
Mostly L1	2	0	0	1	3
L1+English	9	0	12	11	17
Total	20	3	12	11	46

Chisquare=4.9, d.f=6, p=n.s.

Generally speaking, the pattern we found for language interaction in the households agrees with some of the more large-scale surveys which report on language maintenance in the different Canadian ethnic groups. In a recent major work on cultural and linguistic adaptation by ethnic groups in Canada, Herberg (1989) summarized census data from 1861 to 1981. For language maintenance, data was available for 1921 to 1981. His results revealed that the Chinese, Greek and Portuguese had the highest degree of language maintenance during this period of all the 25 ethnic groups surveyed. They were exceeded only by the figures for the two charter groups (French and English). Language maintenance was measured in terms of a "Mother-tongue Retention Rate", calculated as the percentage of census respondents who still understood their traditional mother tongue divided by the total number of respondents indicating membership of that ethnic group. The Chinese exhibited a slow decline from 1921 to 1981 in this rate: from 99% to 78%. The Portuguese also showed a very slight decline 89% to 83%. The Greeks revealed a change in trend -- a decline between 1921 and 1951 from 95% to 58%, and then an increase to 79% between 1951 and 1981. This was partly due to an immigration influx after World War Two. These rates are comparatively high for language retention; 15 out of the 25 ethnic groups reported had retention rates less than 50%. Concentration in urban areas, which facilitates internal cultural and institutional cohesion, is attributed by Herberg as an important enabling condition of high language retention. Herberg also presented data concerning "home use" of the mother tongue, as this question was included on the 1971 and 1981 census forms. The rates indicate what percentage of those respondents who reported understanding their mother tongue actually speak it in the home. In 1981, 84% of the Chinese spoke their heritage language in the home, 78% of the Greeks did so, and 81% of the Portuguese. This represented a slight increase from 1971 for the Chinese, and a slight decrease for the other two ethnic groups.

5. Literacy Environment in the Household

We asked a series of questions concerning the main literate activities of reading, writing and oral storytelling in households. This gives us some indication of the extent of experience of literate activities the children bring to the school. We investigated five conditions: Someone reading to the child; the child reading to someone; someone telling

stories to the child: someone writing to the child: and the child writing to someone.

Tables 18 to 20 report on "Someone reading to the child". From Table 18 we see that in general, it is mostly the parents who read to the children (54 out of 69 households), with the mothers taking the main initiative. Siblings are also often involved (16 households). There was no statistical difference between ethnolinguistic groups. Table 19 reports on the extent of reading done. The difference between the "Occasional" and "Routine" categories is that the former consisted of reports such as "sometimes" or "occasionally" reading to the child, often involving literature the adult happened to be reading, e.g. the newspaper. The latter category, "Routine", contained some indication in the response that some regularity was involved; for example, "every night" or "a couple of times a week". These also involved more age-appropriate materials: storybooks, or books from school. From table 19 we can see that about half of the households indicated some routine reading to the child, but that slightly more than half either never read or only occasionally read to the child. A significant chisquare was found for between-ethnolinguistic group differences.The proportion of households reading routinely to their children in descending order were Greek, English, Portuguese, and Chinese. Table 20 shows that non-English households read to their children in both English and the heritage language for the most part.

Table 18

Identification of "Who Reads to the Child?"

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Nobody	6	1	0	2	9
Mother	5	7	4	4	20
Father	4	1	1	1	7
Both Parents	1	2	3	3	9
Siblings	2	0	1	0	3
Parents + Sibs	4	5	3	1	13
Relatives	2	1	0	0	3
Parents + Rels.	0	4	0	1	5
Total	24	21	12	12	69

Chisquare = 24.9, d.f. = 21, p = n.s.

Table 19

Extent of Reading to Child in Household

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total

Never	6	1	0	2	9
Occasional	12	8	2	5	27
Routine	6	12	10	5	33
Total	24	21	12	12	69

Chisquare = 14.0, d.f. = 6, $p < .05$

Table 20

Language in which Child is Read To

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
n\a	6	1	0	2	9
Mostly Eng.	9	19	2	4	34
Mostly L1	5	0	3	2	10
L1 + Englisn	4	1	7	4	16
Total	24	21	12	12	69

Chisquare = 31.7, d.f. = 9, $p < .01$

Compared to the situation of someone reading to the child, we find comparatively less occurance of the child reading to someone. From table 21 we see that in 22 households there was no report of this occuring, compared to 9 households in which no-one read to the child. Also, whereas parents were mostly involved in reading to the child, children read mostly to siblings, relatives or only to the mother. The fathers are conspicuously absent here. Table 22 indicates that having the child read to someone occurs fairly infrequently; only 19 households reported routine occurence compared to 33 for someone reading to the child. There were no between-ethnolinguistic group differences. The children read overwhelmingly in English, as is indicated in table 23.

Table 21

Identification of "Who the Child Reads To?"

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Nobody	11	5	1	5	22
Mother	1	7	4	2	14
Father	1	0	0	0	1
Both Parents	3	0	1	3	7

Siblings	3	4	4	1	12
Parents + Sibs	4	4	1	1	10
Relatives	1	1	1	0	3
Total	24	21	12	12	69

Chisquare = 21.7, d.f. = 18, p = n.s.

Table 22

Extent of Child Reading to Someone

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Never	11	5	1	5	22
Occasional	9	9	5	5	28
Routine	4	7	6	2	19
Total	24	21	12	12	69

Chisquare = 8.4, d.f. = 6, p = n.s.

Table 23

Language in which Child Reads to Someone

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
n/a	11	5	1	5	22
Mostly Eng.	10	15	8	4	37
Mostly L1	2	1	1	1	5
L1 + English	1	0	2	2	5
Total	24	21	12	12	69

Chisquare = 12.6, d.f. = 9, p = n.s.

Tables 24 to 26 summarize the data concerning oral storytelling. Parents, especially mothers, are the primary source of stories. The statistical difference found for who tells stories to the child should not be over- interpreted. Under the null category ("Nobody") we included reponses which stated that someone used to tell stories but no longer did, often because of both parents working, or grandparents passing away. This was often the case for the Chinese families, and would explain the relatively higher proportion of

households listed in which "nobody" presently tells stories, rather than some lack of predisposition to do so. Also, in most cases only "occasional" frequency of storytelling happens, leading us to infer that this practice may be less prevalent than in the pre-school years. Two other features are noteworthy. A slightly higher proportion of English households report routine storytelling compared to non-English households (1/3 compared to 1/4). Storytelling occurs primarily in the heritage language for the non-English groups. Its seems, therefore, that the heritage language is maintained primarily through the oral mode in families.

Table 24

Identification of "Who Tells Stories"

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Nobody	12	6	1	1	20
Mother	7	4	3	4	18
Father	0	0	2	0	2
Both Parents	1	2	4	1	8
Siblings	1	0	0	0	1
Parents + Sibs	0	3	0	1	4
Relatives	2	4	1	1	8
Parents + Rels.	1	2	1	4	8
Total	24	21	12	12	69

Chisquare = 38.0, d.f. = 21, $p < .05$

Table 25

Extent of Someone Telling Stories to the Child

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Never	12	6	1	1	20
Occasional	10	8	8	8	34
Routine	2	7	3	3	15
Total	24	21	12	12	69

Chisquare = 12.9, d.f. = 6, $p < .05$

Table 26

Language in which Someone Tells Stories to the Child

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
n/a	12	6	1	1	20
Mostly Eng.	2	14	1	3	20
Mostly L1	7	1	8	6	22
L1 + English	3	0	2	2	7
Total	24	21	12	12	69

Chisquare = 36.8, d.f. = 9, $p < .01$

Writing is a literacy activity which does not occur to any significant degree in our sample. From table 27 and 30 we see that slightly over half of the households report that no one writes to the child, and two thirds report the child as not writing to anyone. Writing cards was not coded as writing since almost every household mentioned this, and we wished to define writing as involving at least short texts. Mostly, what was coded as writing involved letters; only in a very few cases was there any occurence of the child writing a story to be read by family members. That is why in Tables 28 and 30 we find so much of the writing involving relatives, most of whom live outside Toronto. Most of this letter writing is done in English.

Table 27

Identification of "Who Writes to Child"

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Nobody	16	8	6	7	37
Mother	0	1	0	0	1
Both Parents	0	0	0	1	1
Relatives	8	12	6	2	27
Parents + Rels.	0	0	0	2	2
Total	24	21	12	12	69

Chisquare = 24.5, d.f = 15, p = n.s.

Table 28

Extent of Someone Writing to Child

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Never	16	8	6	7	37
Occasional	7	10	6	4	27
Routine	1	3	0	1	5
Total	24	21	12	12	69

Chisquare=5.9, d.f.=6, p=n.s.

Table 29

Language in which Someone Writes to Child

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
n/a	16	8	6	7	37
Mostly Eng.	4	12	1	3	20
Mostly L1	4	0	4	0	8
L1+English	0	1	1	2	4
Total	24	21	12	12	69

Table 30

Identification of "Who the Child Writes To"

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
Nobody	22	8	6	8	44
Mother	0	2	0	2	4
Father	0	1	0	0	1
Both Parents	0	1	0	0	1
Relatives	2	8	6	2	18

Total	24	20	12	12	68

Chisquare=22.2, d.f.=12, p<.05

Table 31

Extent to which Child Writes to Someone

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Never	22	8	6	8	44
Occasional	1	9	6	4	20
Routine	1	4	0	0	5
Total	24	21	12	12	69

Chisquare=20.0, d.f=6, p<.01

Table 32

Language in which Child Writes to Someone

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
n/a	22	8	6	8	44
Mostly Eng.	1	12	0	2	15
Mostly L1	1	1	4	0	6
L1+English	0	0	2	2	4
Total	24	21	12	12	69

Chisquare=41.6, d.f.=9, p<.01

6. Parents' Attitudes towards and Involvement in Schooling

The answers that parents gave to describe their involvement with their child's school fell into three modal categories: no involvement at all, the minimal involvement of attending parent-teacher interviews, and the more substantial commitment of attending meetings of the Parents' Association. Table 33 shows that almost all parents attend the interviews. Only about one third, however, participate in Parents' Associations. No significant difference was found between ethnolinguitic groups in our sample.

Table 33

Extent of Parents' School Involvement

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
None	2	2	1	0	5
Interviews	14	14	6	10	44
P.A. meetings	8	4	5	3	20
Total	24	20	12	13	69

Chisquare=3.7, d.f.6, p=n.s.

The answers to the question "Do you assist your child in his/her schoolwork" was divided into two pieces of information: whether someone assisted the child at all, and if so, who did. Mothers mostly assist their children in schoolwork-related activities. Fathers are also involved but not as much as mothers. Siblings were found to be involved in 13 households.

We discovered that many of the answers could not be coded as a straightforward yes or no. Two subcategories of "no" were a qualified no and "can't". These involved cases in which the parents believed their English was not good enough to do so, or in which the parents believed that children should attempt schoolwork on their own. Three subcategories of "yes" consisted of: 1) yes, but only when the child requested assistance (reactive),2) yes, but only with their instruction in their heritage language, and 3) yes, but only in certain subjects in which they needed assistance, e.g math (subject).

Table 34 indicates that the large majority of parents offered some sort of assistance to their children. The significant difference between ethnolinguistic groups involved the subcategories of "yes": while the Chinese most often stated an unqualified yes, both English and Portuguese favored a "reactive" yes, and the Greeks favored a language-qualified yes.

Table 34

Who Assists Child with Schoolwork

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
Nobody	5	1	1	1	8
Mother	5	9	3	3	20
Father	2	0	0	1	3
Both Parents	5	11	4	3	23
Siblings	3	0	1	2	6

Parents + Sibs	1	0	3	1	5
Relatives	2	0	0	0	2
Parents + Rels	0	0	0	1	1
Sibs + Rels	1	0	0	1	2
Total	24	21	12	13	70

Chisquare = 32.1, d.f. = 24, p = n.s.

Table 35

Categories of Answers to "Do you assist your child in their schoolwork"

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
No	2	1	0	0	3
No(qualified)	3	0	1	0	4
Can't	0	0	0	1	1
Yes	10	5	4	2	21
Yes(reactive)	3	10	0	7	20
Yes(language)	3	0	6	0	9
Yes(subject)	3	5	1	3	12
Total	24	21	12	13	70

Chisquare = 42.8, d.f. = 18, p < .01

We asked two questions concerning parents' preferences about homework: "Should there be homework?"; and "Would you assist your child in doing their homework?'. The great majority of parents agree that there should be homework for the grade level that their child is in, as indicated in Table 36; the "no" response predominated for parents with children at the lower grades. Eleven households even specified which subjects they felt their child especially needed homework in. There were no between-ethnolinguistic group differences. The modal response about the willingness to give assistance was an unqualified yes. Interestingly, fewer parents qualified their answers with the issue of language as in the question concerning actual assistance in schoolwork (Table 35). While some of the Chinese, English and Portuguese parents stated that they would not assist their children in doing homework, none of the Greek parents did so, accounting for the between-group differences.

Table 36

Categories of Answers to "Should there be homework?"

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
No	1	2	1	1	5
No(qualified)	1	5	1	2	9
Maybe	1	0	0	1	2
Yes	13	9	10	7	39
Yes(subject)	7	4	0	0	11
Total	23	21	12	12	68

Chisquare = 17.8, d.f. = 15, p = n.s.

Table 37

Categories of Answers to "Would you assist your child with homework?"

Categories	ETHNOLINGUISTIC GROUP Chinese	English	Greek	Portuguese	Total
No	3	1	0	0	4
No(qualified)	0	2	0	0	2
Can't	2	0	0	3	5
Yes	14	13	7	5	39
Yes(reactive)	4	5	3	4	16
Yes(language)	0	0	2	0	2
Total	23	21	12	12	68

Chisquare = 26.3, d.f. = 15, $p < .05$

The final question to be reported on here combines the answers parents gave concerning their avowed "educational goals" and aspirations about "life-time achievements" for their children. We found that the same set of answers were reported for both questions, and these could be categorized according to a set of ten categories. The first three categories involved the degree of education aspired to: "University", "High School" or simply the notion of getting a "good education". Another category stessed general effort, "the best they can do". A fifth category seemed to indicate that parents had little say in the matter, the child's future was "up to the child". A sixth category stressed an economic and practical aspiration, to "get a good job". The final four caegories emphasized character development: to achieve "independence"; "self-fullfilment"; or become a "good person" such as a loyal husband or wife; or develop into an "informed citizen". Table 38 reports the percentage of respondants within each ethnolinguistic

group mentioning a category of goal or aspiration. This was an open-ended question so that parents could mention more than one goal/aspiration if they wished to. Most did, the largest number mentioned by any parent being five.

The major patterns displayed in Table 38 are the following: The Chinese parents stressed a university education, or stated that it was "up to the child". Educational attainment was the modal concern for Chinese parents. For the English parents, a university education, or a good education in general, and particularly self fulfillment were the main concerns. Also, they were the only parents to mention becoming an "informed citizen" as a goal. The Greek parents overwhelmingly hoped their child could attain a unversity degree, at the same percentage as the Chinese parents. They also were the group which most emphasized becoming a "good person" -- perhaps representing a cultural emphasis on family-based virtues -- as well as "independence" and doing "the best they could". The latter may have been their expression of aspiring to self-fullment. The Portuguese parents stressed educational goals, including a university education, as well as self-fullfilment, becoming a good person, or leaving it up to the child. More than any other group, these parents stressed getting a good job.

There is no order of importance intended in the order in which the categories are listed in Table 38. Of particular interest, however, are the goals/aspirations associated with educational attainment. No group falls below the English in percentage of parents who would like to see their children get a university education. This is in sharp contrast to data which shows low actual attainment of a university degree by the Greek and Portuguese populations. According to Li's (1988) analysis of 1981 census data, only 1.4% of Portuguese adults and 5.4% of the Greek adults received university degrees compared to the national average of 10.3%. The average for adults of British descent was 10.4%. The Chinese had the second highest percentage overall: 20.7%. Li also found, however, a difference between native-born and foreign-born Greeks and Portuguese in years of schooling. It may be, therefore, that the educational disadvantage of these two ethnic groups is in the process of being changed with the present Canadian-born generation and this is being reflected in parents' educational aspirations for their children.

Table 38

Categories of Parent's Educational Goals and Life-time Achievement Aspirations for the Child

	ETHNOLINGUISTIC GROUP			
Categories	Chinese	English	Greek	Portuguese
University	83	57	83	58
High School	22	5	8	34
Good Education	13	48	34	25
Best they can do	0	5	25	0
Up to child	57	19	8	34
Good job	17	10	8	58
Independence	0	14	25	0
Good person	0	19	67	17
Self-fullfillment	13	62	8	25
Informed Citizen	0	10	0	0

7. Two Additional Aspects of Language and Literacy Acquisition

Our interviews contained two additional items concerning practices relevant to language and literacy acquisition. These were attendance at a heritage language class, and use of a public library. Tables 39 and 40 show that the majority of children do attend a heritage language class and do frequent a public library. There are no between-ethnolinguistic group differences in these practices.

Table 39

Subject's Attendance at Heritage Language Class

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
No	5	3	2	3	13
Yes	18	3	10	9	40
Total	23	6	12	12	53

Chisquare = 2.6, d.f. = 3, p = n.s.

Table 40

Child's Use of Public Library

	ETHNOLINGUISTIC GROUP				
Categories	Chinese	English	Greek	Portuguese	Total
No	5	6	2	7	20
Yes	18	15	10	5	48
Total	23	21	12	12	68

Chisquare = 6.4, d.f. = 3, p = n.s.

II. ASSESSMENTS OF ACADEMIC ACHIEVEMENT AND LANGUAGE PROFICIENCY

We collected two distinct kinds of assessment of student's academic progress and language proficiency: teacher's ratings or rankings, and performance tests administered by our own researchers. Of the former kind, three measures were collected: teacher's rankings of student progress relative to the rest of the class, ratings on oral language proficiency in the classroom, and ratings on classroom evidence of comprehending particular mathematics concepts. The performance tests administered by our researchers comprised: math computation, math word problems, oral reading, silent reading comprehension/recall, and silent reading comprehension/ inference.

Before presenting the data, we wish to explain that we will be presenting the data separately for the three age cohorts. The primary reason for this is that the assessment instruments utilized often included items of increasing difficulty. Consequently the magnitude of score changes could not be equated at different levels of difficulty. In other words, an increase of 10 points with easier items would not be equivalent to an increase of 10 points with more difficult items. We felt that more valid comparisons could be made within cohorts since children within these cohorts were generally tackling the same test items. While the ratings collected from the teachers did not suffer from this technical problem since there was no question of items differing in level of difficulty in this case, this data was will still be separated according to cohort in order to compare them to the performance test data. Separating the data by cohorts, however, introduces a statistical problem. This reduces our sample cell size for performing analyses of variance to six, a very small number. In such cases it is possible to have large differences between means but no statistical difference between them because of the combination of small cell size and a large standard deviation between scores. It is usually true in such cases that a simple increase in sample size will produce significant differences even though the means do not change. We run the risk with our analyses, therefore, of rejecting the hypothesis of significant difference between groups when our results are close to but not quite statistically significant. For this reason, we will indicate with an asterisk those results that are almost significant; operationalizing these cases as a probability value between .05 and .07. In this way we can mark those results that might in fact have been significant had we used a larger sample. The primary purpose for this exercise is to improve our sensitivity to patterns in the data.

1. Teacher's Rankings

At the end of each school year we asked the teachers to rank order all the children in the class in terms of academic achievement. We transformed these rankings into percentile rankings to adjust for differences in class size. For example, a student ranked sixth in a class of ten is in a different relative class position than a student ranked sixth in a class of thirty. Table 41 displays the results of these rankings divided by ethnolinguistic group, cohort and year.

The first obvious noticeable feature of this table is that despite large differences in the absolute average percentages few significant differences resulted from oneway analyses of variance. For example, for cohort 1 year 1 a large range exists between the English and Greek students in average percentile ranking (76th percentile versus 29th percentile), but the F value did not attain significance. A large part of the reason for this is that each cell of the cohort x ethnolinguistic group contains a rather small number of subjects, namely six. If we look at the averages for the three cohorts combined we find significant differences for ethnolinguistic group membership. It is valid to

consider the combined scores in this case since the ranking procedure is done relative to class norms of academic achievement.

A similar pattern is exhibited across the three years of the project in relative ranking of students from the four ethnolinguistic groups. Specifically, English students are ranked higher than Chinese students who are ranked slightly higher than Greek or Portuguese students. This consistency in pattern is impressive when one considers that for each year a different group of teachers, for the most part, did the rankings; there were only a few cases of teachers having the same students two years in a row.

Table 41

Average Percentile Ranking of Students:
Cohort x Ethnolinguistic Group x Year

	Year 1	Year 2	Year 3
Cohort 1			
Chinese	55	49	56
English	76	82	82
Greek	29	26	17
Portuguese	54	22	45
	n.s.*	$p<.01$	n.s.
Cohort 2			
Chinese	57	51	58
English	73	57	80
Greek	69	41	42
Portuguese	56	23	43
	n.s.	n.s.	n.s.
Cohort3			
Chinese	69	76	65
English	75	57	61
Greek	45	52	50
Portuguese	49	56	57
	n.s.	n.s.	n.s.
Cohort 1+2+3			
Chinese	58	54	57
English	75	65	74
Greek	49	40	38
Portuguese	53	33	51

	p<.05	p<.05	p<.05

* p = between .05 and .07

2. Teacher's Rating of English Language Proficiency

At the end of each school year, teachers were asked to rate each of the students involved in the project on English language proficiency in the classroom. The instrument used was called the "Student Oral Language Observation Matrix" (SOLOM), and was developed by Lily Wong Filmore in the United States, and modified by Jim Cummins at O.I.S.E. for our project. The teachers had to rate each project student on a scale of one to five on seven categories: 1) Comprehension in casual social conversations, 2) Comprehension in curriculum-focused conversation, 3) Fluency in casual social conversation, 4) Fluency in curriculum-focused conversation, 5) Vocabulary, 6) Intelligibility of communication, and 7) Grammar.

To simplify the data presentation we averaged the scores over the seven items for each subject. Table 42 presents the average scores of the different ethnolinguistic groups separated by cohort and by year. Similar to our treatment of the teachers' rankings, we felt that it was valid to combine the scores across cohorts as well, to increase sample cell size. For these combined scores, there is a significant difference between ethnolinguistic groups for each year. Specifically, the non-English groups were rated at about the same level of language proficiency, approximately at or slightly above the mid-point of the rating scale (3). The English group of students was rated about one point higher.

If we look at the cohorts separately, however, we find statistically significant differences for cohort 1, but not 2 or 3 (except for cohort 3 at year 1). The small cell size combined with large standard deviations may have biased against statistical significance; this being plausible given the significant differences obtained when the cohorts were combined. Nevertheless, the significant result for cohort 1 is interesting in that it indicates that teachers at the lower grades (cohort 1 = SK, grades 1 and 2) must have more consistently scored non-English students lower than English students, therefore producing the smaller standard deviations required to produce statistically significant differences between the means. This result is understandable if we consider that bilingual students, some of whom have parents who are not very fluent in English, are probably not as proficient in the standard English used in the classroom when they first enter school.

Table 42

Average SOLOM English Language Proficiency Rating:
Cohort x Ethnolinguistic Group x Year

	Year 1	Year 2	Year 3
Cohort 1			
Chinese	3.1	2.7	3.4
English	4.5	4.7	4.4

Greek	2.9	3.2	2.8
Portuguese	4.0	2.7	3.7
	p<.01	p<.01	p<.01
Cohort 2			
Chinese	3.1	3.3	3.6
English	4.2	4.1	4.2
Greek	3.6	3.4	3.8
Portuguese	3.2	3.3	3.4
	n.s.	n.s.	n.s.
Cohort3			
Chinese	3.4	3.3	3.0
English	4.2	3.6	4.2
Greek	3.3	3.1	3.8
Portuguese	2.9	3.0	3.1
	p<.05	n.s.	n.s.
Cohort 1+2+3			
Chinese	3.1	3.1	3.3
English	4.3	4.1	4.3
Greek	3.3	3.2	3.5
Portuguese	3.3	3.0	3.5
	p<.01	p<.01	p<.01

3. Teacher Rating of Mathematical Achievement

We asked each teacher at the end of the school year to rate each project student on a series of items in four areas of math achievement: problem-solving, arithmetic, measurement, and geometry. Grade-appropriate items were constructed for the last three areas using as a source the "Mathematics Guideline Grade K-6" published by the Toronto Board of Education (1983). The area of "problem-solving" was constructed by the project and consisted of the following five items to be rated: perseverance, confidence, willingness, breadth and creativity.

The results for these ratings of math achievement are summarized in Table 43. We separated the problem-solving scores from the other areas because we felt that in fact two different forms of achievement were being addressed: the former having to do with those motivational traits associated with effective problem-solving, and the latter having to do with content knowledge acquisition. We found no significant differences for cohorts 2 or 3. For cohort 1, significant differences were found across both types of achievement, and for each year, except for problem-solving at year 1. Because the test items differed in difficulty level from grade to grade, it is unacceptable to collapse the scores across cohorts, as was done for the other ratings.

Table 43

Average Score on Math Concepts Test:
Cohort x Ethnolinguistic Group

	Problem-Solving			Math Content		
	Year 1	Year 2	Year 3	Year 1	Year2	Year 3
Cohort 1						
Chinese	3.6	3.9	4.1	3.0	3.9	4.0
English	4.0	4.3	4.4	4.5	4.6	4.7
Greek	2.9	2.1	2.9	1.4	2.4	3.0
Portuguese	3.7	2.8	3.0	3.6	3.0	2.9
	n.s	p<.01	p<.05	p<.01	p<.05	p<.05
Cohort 2						
Chinese	4.0	4.0	3.8	3.6	3.9	3.9
English	3.3	3.5	3.8	3.6	3.7	3.9
Greek	3.2	3.3	2.7	3.8	3.1	3.0
Portuguese	3.4	2.7	3.0	3.5	3.1	3.4
	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Cohort3						
Chinese	4.0	3.8	3.5	4.2	4.1	3.9
English	3.1	3.1	3.2	3.8	3.5	3.5
Greek	3.9	3.6	3.5	4.2	3.8	3.5
Portuguese	3.4	3.0	3.7	3.4	3.3	4.0
	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

4. Assessment of Heritage Language Proficiency

Assessments of the subject's heritage language proficiency were carried out in years 1 and 3 of the project. The researchers whose native language was one of the ones involved in our study selected and prepared materials for assessing each child in four areas of proficiency: oral production and comprehension (speaking and listening), reading orally, and writing. For the year 1 assessment a formal method of scoring was not developed so that, while providing valuable infomation suitable for use in case studies, these results were not quantifiable and therefore will not be considered here. For the assessments in year 3, a 6-point rating scale was developed by the researchers to allow comparisons between subjects and languages and across the different types of proficiency. The scale points were described as follows:

0 Cannot even begin the task
1 Minimal proficiency; halting performance

2 Stuggling performance
3 "Can get by" performance
4 Native-like control
5 Superior proficiency relative to their age group.

The standard to be kept in mind for this rating scale was the level of proficiency expected of children of the same age in the countries of origin. All the researchers involved in this assessment were knowledgeable of these standards.

The results displayed in Table 44 show that the three ethnolinguistic groups involved did not differ in overall heritage language proficiency. The average scores listed are combined scores for the four areas of language proficiency. For the results listed in Table 45, we separated the scores by the four areas of language proficiency, and combined them across cohorts. Clearly, these students are more proficient with the oral mode of communication in their heritage language than with the more "literate" modes of reading and writing. The only anomoly to this was that the Greek students did relatively well in reading; although the result for reading was statistically non-significant, it was very close to being significant ($p=.056$). In general, however, there were no differences between ethnolinguistic groups for the separate types of language proficiency.

Table 44

Average Score on L1 Assessment

	Cohort 1	Cohort 2	Cohort 3
Chinese	2.3	2.2	3.0
Greek	2.3	3.6	3.6
Portuguese	1.9	2.4	3.5
	n.s.	n.s.	n.s.

Table 45

Assessment of Heritage Language Proficiency: Speaking, Listening, Reading, Writing

	Speaking	Listening	Reading	Writing
Chinese	3.1	3.1	2.2	1.9
Greek	3.4	3.0	3.7	2.4
Portuguese	2.6	3.3	2.1	1.7
	n.s.	n.s.	n.s.	n.s.

5. Assessments of Academic Achievement

Assessments were made of five areas of academic achievement: math computation, word problems, oral reading, reading comprehension: recall and inference. The assessments were done around November and June of years 2 and 3. The researcher who performed these assessments was not one of the field workers, and had no contact with the children outside of the testing situation. Standardized tests were used as sources for the materials used. The Metropolitan Achievement Test (Toronto Board of Education) was used for every sub-test except oral reading. For this purpose the Oral Reading sub-test of the Durrell Analysis of Reading Difficulty was used.

We were less interested in the norm-referenced utility of these tests than in their usefulness as a sensitive measure of each student's school progress. That is, we were more interested in the academic gains each student made than in their relative level of achievement. Consequently, the assessments were made using a clinical interview procedure in which the tester provided as much time, explanation and encouragement as each student required. Increasingly more difficult material was presented at each session until the student was unable to continue. Because the same material was used to begin each testing session, and because we were interested in perceiving academic gains no matter how slight, we gave students credit for previously correct answers. The overall aim of this testing procedure was to diminish as far as possible the negative effects of formal testing situations which may affect some students more than others.

Before looking at the gains made by students between the first and last (fourth) testing, we asked ourselves whether there were any differences between ethnolinguistic groups to begin with; that is, at the first testing. In other words, the results of the first test in the fall of year 2 can be taken as a baseline. Table 46 reports the results for the first testing separated into the five sub-tests. The figures are average *raw scores* reflecting the number of points awarded for correct answers; except for the Oral Reading score which represents reading grade level. Because materials were organized in increasing difficulty, the scores from different grade levels are not comparable; for this reason the cohorts are separated and we do not attempt to combine scores across cohorts. Also, the scores for oral reading and reading comprehension are not listed for cohort 1, who were at the time of testing beginning grade 1 and therefore only beginning to read.

We found few significant differences between ethnolinguistic groups. There were none for cohort 3. A significant difference was found for Word Problems for cohort 1: and for Math Computation and Reading Inference for cohort 2. There was not, however, a consistent pattern of some groups doing better than others. For example, the Portuguese subjects in cohort 2 performed least well in Math Computation, but had the second highest average score in Reading Comprehension: Inference. In general, therefore, we can conclude that, in our baseline testing for academic achievement, the four ethnolinguistic groups were on generally equal standing.

Table 46

Average Raw Score for the First Assessment of Academic Achievement (Fall, Year 2)

	Math Computation	Word Problems	Oral Reading	Reading: Recall	Reading: Inference

Cohort 1					
Chinese	31	7.1	0.4	**	**
English	40	7.9	0.7	**	**
Greek	13	5.0	0.2	**	**
Portuguese	30	5.4	0.3	**	**
	n.s.	p<.05	n.s.*	**	**
Cohort 2					
Chinese	89	16.3	3.1	9.9	9.5
English	76	13.3	4.1	16.0	16.0
Greek	85	15.5	3.5	11.8	8.5
Portuguese	67	12.0	3.3	11.0	12.8
	p<.05	n.s.	n.s.	n.s.	p<.01
Cohort3					
Chinese	102	22.1	5.9	20.0	18.8
English	96	19.3	6.4	21.9	22.4
Greek	104	20.5	6.0	21.0	20.3
Portuguese	96	19.3	5.4	20.0	17.0
	n.s.	n.s.	n.s.	n.s.	n.s.

The measure we were most interested in was that of school progress; that is, of the relative gains or losses evidenced in academic achievement. To this end, we calculated each subject's *change score* on each of the five sub-tests by subtracting their score on the first assessment (fall, year 2; as reported in table 46) from their score on the last assessment (spring, year 3). The results are reported in Table 47.

The results for cohorts 2 and 3 are clear and unequivocal -- there are no differences between ethnolinguistic groups concerning academic gains in any of the five assessment sub-tests. For cohort 1, a significant difference was found for Reading Comprehension: Inference. In addition, the results for Math Computation, Oral Reading and Reading Comprehension: Recall were almost statistically significant. The English group of students seem to have made the greatest gains in reading, while the Greek students seem to have made the greatest gains in mathematics. What is interesting is that if we refer back to Table 46, the Greek students had the lowest average score in Math Computation. In other words, they had the most to gain and this is in fact what happened during the next two school years. In general, we find no difference in academic progress between the ethnolinguistic groups included in our study, except at the lower grades. There is evidence, at the lower grades, that students who may be disadvantaged in a particular area quickly make up the difference (e.g. the Greek students in our sample concerning mathematics). There is also evidence that the English students have an advantage in the early grades with reading performance. But, as our results for our older students (cohorts 2 and 3) indicate, this advantage may be overcome by about grade 3.

Table 47

Average Change Score for Assessment of Academic Achievement (Spring Year 3 - Fall Year 2)

	Math Computation	Word Problems	Oral Reading	Reading: Recall	Reading: Inference
Cohort 1					
Chinese	35	3.6	2.4	4.9	3.9
English	33	5.3	2.7	9	9.3
Greek	44	6.5	8.3	1	0.3
Portuguese	24	4.6	1.2	2.6	2.0
	n.s.*	n.s.	n.s.*	n.s.*	$p<.05$
Cohort 2					
Chinese	12	5	1.3	7.8	8.5
English	16	6.4	1	8	10.8
Greek	12	5.7	1.7	4.8	9
Portuguese	22	4.5	1.6	3.0	5.8
	n.s.	n.s.	n.s.	n.s.	n.s.
Cohort3					
Chinese	8	4.1	0.8	7	13
English	11	4.9	0.5	4.7	11.3
Greek	10	7.3	0.8	5.8	11
Portuguese	10	3.5	1.8	5	11.5
	n.s.	n.s.	n.s.	n.s.	n.s.

* p = between .05 and .07

6. Relationship between Social and Family Background Measures, Teachers' Ratings and Assessment Scores

In previous sections we reported results in terms of ethnolinguistic group averages and concentrated on the presence or absence of between-group differences. These analyses addressed the relationship between ethnolinguistic group membership and a number of measures considered one at a time. In this section we will investigate the relationship between all of the variables using correlation. Rather than report one large correlation matrix of all the variables involved, we will divide the presentation into three sections: 1) the relationship between social and family background measures, 2) the relationship between assessment scores and 3) the relationship between the background measures and the assessment scores.

We are using correlation here as a statistical procedure to identify which of the variables

in our sample are associated with each other. We can also calculate the degree of association between variables by squaring the correlation coefficient which tells us the amount of variance in the variables accounted for by the correlation.

1. Correlations between Social and Family Background Measures

We included the following measures as representative of social background and family linguistic and literacy environment:

- **Socio-Economic Status (SES)**: A combined score calculated by adding the category of the highest household occupation to the average of the parents' level of education.

- **Literacy Environment (LIT)**: A combined score calculated by adding the scores for the "extent" of reading, writing and storytelling that goes on in each household (c.f. Tables 19,22,25,28,31).

- **Mother's Length of Residence (MRES)**: Mother's length of residence in Canada; chosen as the best indicator of this variable because mothers are the primary caretakers. If mother and father came at different times, the fathers usually came first, and the mothers followed with the children.

- **Household Size (HSIZE)**: The number of people in the household including parents, siblings, grandparents, aunts, uncles, cousins and tenants.

- **Number of Older Siblings (OSIB)**: The number of older siblings.

- **Mother's Language of Interaction (MLG)**: Because the rating scale for this variable was nominal, a dummy variable was constructed in which a score of 0 meant that the mother interacts mostly in her first language (L1), while 1 meant that the mother interacts mostly in English, or equally in both L1 and English.

- **Assistance with Schoolwork (ASST)**: A dummy variable was constructed by separating the answers given to this variable (c.f. Table 35) into "active assistance" (1) or "passive or no assistance" (0); the latter including the answer categories: "No", "No(qualified)", "Can't" and "Yes(reactive)".

- **Public Library Usage (LIB)**: A dummy variable simply using the original yes or no responses.

- **Heritage Class Attendance (HER)**: A dummy variable simply using the original yes or no responses.

The results will be presented separated by cohort. To make the display of correlations as clear to read as possible, only the statistically significant correlations (i.e. significantly different than no correlation; $r = .00$) are printed.

Table 48

**Correlations of
Social Background and Family Environment Measures:
Cohort 1**

	SES	LIT	ASST	MRES	HSIZE	MLG	OSIB	LIB
LIT	.43							
ASST								
MRES	.53		-.53					
HSIZE								
MLG	.50	.53						
OSIB					.65			
LIB								
HER						-.47		

Table 49

**Correlations of
Social Background and Family Environment Measures:
Cohort 2**

	SES	LIT	ASST	MRES	HSIZE	MLG	OSIB	LIB	HER
LIT	.55								
ASST		.51							
MRES	.43	.51							
HSIZE									
MLG	.66	.38		.50	-.57				
OSIB									
LIB	.37								
HER									

Table 50

**Correlations of
Social Background and Family Environment Measures:
Cohort 3**

	SES	LIT	ASST	MRES	HSIZE	MLG	OSIB	LIB	HER
LIT									
ASST									
MRES									
HSIZE	-.44			-.50					
MLG				.43	-.45				
OSIB		-.74							
LIB									
HER		.40						.69	

Table 48 presents the results for cohort 1. The table identifies the pairs of variables for which we can conclude some degree of association. We could attempt to interpret each correlation in the direction of association: for example, the positive correlation between SES and LIT means that families higher in socio-economic status are more liable to offer more literacy experiences to their children. However, such interpretations must be tempered by the actual amount of statistical association involved between the two variables. In this case, for example, only 18% (.43 x .43) of the variance in the score distribution of the two variables is explained by the correlation. In other words, the predictive relationship between the two variables is not very strong. To state unequivocally that higher SES is predictive of a more literate environment on the basis of this correlation would be an over-interpretation of the data. So, for this table and the tables to follow we will not state substantive interpretations of the correlations unless the correlations are high enough to account for a substantial amount of variance in the measures involved. Looking at tables 48 to 50 we can see that most of the correlations fall around the .50 range, only accounting for about 25% of the variance in score distributions. We have to conclude that for the correlations in tables 48 to 50 we cannot offer reliable substantive interpretations of the relationship between specific social and family background variables.

Correlational and regression procedures require that score distributions for each variable be normally distributed. If one variable has little variability in score distribution, or a skewed distribution, then a low correlation will result. A low correlation does not indicate that a variable is not important in the phenomenon being studied, but rather that for the sample at hand, that variable cannot be used to predict performance in another. So, for example, if all the students in one class come from the same socio-economic status level, then SES cannot be used to predict differences in academic achievement for that class. Notice that this conclusion is conditional to a particular class and does not imply that SES is unimportant for academic achievement in general. To address the larger question we would have to use a sampling strategey specifically aimed at producing wide distribution in SES scores.

The design of our study concerning the quantitative data was never set up to answer the larger question of the relationship between the variables considered. Rather, we are interested in arriving at some conditional conclusions about our own sample of students.

What we can conclude from the results of tables 48 to 50 is that only some of the social and family background variables are mildly predictive of each other. For our sample of students, statements about the association between particular social and family background variables cannot be expressed in any global sense (e.g. "Families with higher SES provide more literacy experiences to their children").

2. Correlations between Assessment Measures

There were assessments made of relative academic achievement and language proficiency. These were collected in the form of teachers' ratings and rankings or as performance scores on tests administered by a researcher. To save space on the tables we used two and three-letter designations for the different measures, identified in the following list:

Achievement Tests	
MA	Math Computation
WP	Word Problems
OR	Oral Reading
RE	Silent Reading Conprehension: Recall
IN	Silent Reading Comprehension: Inference
Teachers' Ratings	
SOL	Student Oral Language Observation Matrix (SOLOM)
PS	Problem-Solving section of Math Concepts rating list.
MC	Math Concepts: content sections of Math Concepts rating list.
RK	Percentile Ranking of each student.

The first two achievement tests assessed math performance (MA and WP) and the last three assessed reading performance (OR, RE and IN). Oral language proficiency in English was assessed by SOL; general problem-solving ability regarding math was assessed by PS; and math knowledge with MC. The teachers' rankings (RK) were assumed to represent an evaluation of global academic achievement in all subject areas. Of particular interest here is the relationship between all these measures, particularly between the teachers' ratings or rankings and the formal achievement tests.

Table 51

Correlations of Academic and Language Assessments: Cohort 1

	MA	WP	OR	RE	IN	SOL	PS	MC	RK
WP									
OR									
RE			.88						
IN			.77	.96					
SOL		.63	.55	.70	.75				
PS			.65	.67	.63	.54			
MC			.71	.82	.85	.78	.85		
RK			.65	.69	.68	.65	.55	.79	

From tables 51 to 53, we can see that the relationship between assessment measures changes from cohort 1 to cohort 3; in other words, from the lower grades to the higher grades. Starting with the lowest grade cohort 1 (SK, grades 1 and 2), table 51 shows that there is a general association between the reading scores (OR, RE, IN) and the teachers' ratings/rankings (SOL, PS, MC, RK). There are no significant correlations between the math sub-tests (MA, WP) and the reading sub-tests. As well, these two math sub-tests are not correlated to each other. By contrast, the three reading sub-tests are highly correlated to each other, indicating that reading performance is not very differentiated at this grade level. In other words, those students who read best orally, also recall better and comprehend better (inference).

Concerning the relationship between the achievement tests and teachers' ratings/rankings, there are substantial correlations between the reading sub-test measures and the ratings. Interestingly, the two highest correlations (.82 and .85) are between the achievement sub-tests for reading comprehension (recall and inference) and teachers' rating of math concept performance. This particular rating (MC) also correlates highly with the teacher's ratings of English language proficiency (SOL) and with problem-solving performance (PS). Finally, the MC rating is the measure with the highest correlation with teachers' ranking of students concerning academic progress during the school year (.79; accounting for 62% of the variance in teachers' rankings).

We should not conclude from this that math performance is the most important determinant of teachers' evaluation of academic progress at this grade level. The math achievement sub-tests (MA, WP) hardly correlated at all with teachers' ratings/rankings. Note that high correlations were obtained between the reading achievement sub-tests and teachers' ratings of math concept performance, and between the latter and teachers' ratings of problem-solving performance. We may conclude that underlying this pattern of correlations is the evaluation of a general comprehension and problem-solving ability, whether in reading or in math.

Table 52

Correlations of Academic and Language Assessments: Cohort 2

	MA	WP	OR	RE	IN	SOL	PS	MC	RK
WP									
OR									
RE		.55							
IN		.67		.68					
SOL		.64			.66				
PS	-.85								
MC	-.70					.68	.85		
RK				.40	.64	.81	.55	.68	

Compared to the 22 significant correlations we found for cohort 1, 14 significant correlations were found for cohort 2, and mostly of lower magnitude. In general, therefore, there is less association between achievement measures for this cohort

involving the middle grades (grades 2,3 and 4). Only three correlations are of a magnitude worthy of substantive interpretation. A negative correlation of -.85 (accounting for 72% of the score variance) was found between math computation (MA) and teachers' rating of problem-solving performance (PS). This is a peculiar result and one for which we cannot offer an explanation. There is a high correlation between teachers' rating of problem-solving performance and their rating of math concept performance. We get the sense from these results that teachers begin to put more emphasis on problem-solving performance and concept acquisition and less on computational skills at this grade level. When we look at teachers' rankings, the most salient predictor is English oral language proficiency (SOL) (correlation of .81, accounting for 64% of the score variance).

Table 53

Multiple Correlations of Academic and Language Assessments: Cohort 3

	MA	WP	OR	RE	IN	SOL	PS	MC	RK
WP									
OR									
RE									
IN				.52					
SOL			-.58						
PS									
MC							.96		
RK	-.48							.66	

When we reach cohort 3, the highest grades (grades 4,5 and 6), we find little correspondence between the achievement measures. Only 5 significant correlations were found, and only one high enough to account for a substantial amount of score variance. This is a correlation of .96 between problem-solving performance and math concept achievement. At this level, problem-solving performance has replaced computational performance as the primary indicator of math achievement (note the negative correlation between math computation and teachers' rankings). The highest significant correlation with teachers' rankings is math concept performance.

In general, tables 52 to 54, reveal a progressive differentiation in the underlying abilities reflected by these achievement tests and teachers' ratings. We expect, in other words, less correlation between measures the more they actually measure different abilities or types of achievement. The salience of the teachers' rating of math concepts performance, especially in association with their rankings, should not be interpreted as indicative of math achievement being more important than any other type of achievement in mediating teachers' perceptions of academic progress. We noted that the achievement sub-tests for math performance (MA, WP) do not correlate highly with teachers' ratings/rankings. The math concepts performance rating represents the only measure involving teachers' perceptions in which the teacher was asked to focus on specific academic achievement in some content area. By comparison, the SOL and PS ratings focus on general forms of achievement/proficiency, namely, in English language

proficiency and problem-solving ability. If we had included a rating for reading performance, this probably would have also resulted in a high correlation with teachers' rankings.

We can conclude, in the end, that teachers' ranking, and therefore perception, of academic achievement is based on their perception of classroom achievement in content areas such as math, as well as on English language proficiency. These perceptions, in turn, do not necessarily reflect actual achievement levels, if we accept our own assessments of the students as an approximation of these achievement levels. Assessment of reading achievement seemed to be somewhat predictive of teachers' ratings/rankings in the early grades, but by the middle grades even this association is lost.

3. Correlations between Background and Assessment Measures

For our final set of multiple correlations, we correlated the social background and family environment measures with the assessment measures. We should repeat that our purpose is not to attempt to arrive at global conclusions concerning the relationship between these variables in the general population. This would have required a much larger sample and a different sampling procedure. Rather, we are interested in finding out what statements we can make about the association between these variables for our particular sample of students.

Table 54

Correlations of Social and Family Measures with Assessment Scores: Cohort 1

	SES	LIT	ASST	MRES	HSIZE	MLG	OSIB	LIB	HER
MA						-.42			.48
WP				.55					
OR	.52	-.41							
RE	.68								
IN	.69								
SOL	.83			.76		.44			
PS	.57	-.69							
MC	.76	-.49							
RK	.57								.66

Table 55

Correlations of Social and Family Measures with Assessments: Cohort 2

	SES	LIT	ASST	MRES	HSIZE	MLG	OSIB	LIB	HER

MA								
WP							.56	
OR	-.44	-.45				-.51		
RE								
IN								
SOL	.46		.50		-.44			
PS								
MC	.69							
RK	.55	.45			-.47			

Table 56

Correlations of Social and Family Measures with Assessments: Cohort 3

	SES	LIT	ASST	MRES	HSIZE	MLG	OSIB	LIB	HER
MA			-.39						
WP									
OR	-.41				.68				
RE		.55					.44		-.43
IN			.50						-.44
SOL	.71				-.56				
PS									
MC									
RK									

Tables 54 to 56 exhibit a pattern of results similar to the pattern of diminishing association between measures that we found in tables 52 to 54. The most obvious pattern is in the relationship between socio-economic status and the assessment measures. We find significant correlations between SES and all the assessment measures except the two math performance sub-tests (MA and WP) for cohort 1 (Table 54). The two highest correlations are between SES and teachers' ratings of English language proficiency (SOL), and between SES and teachers' ratings of math concepts achievement (MC). Another high correlation is between mother's length of residence (MRES) and teachers' ratings of English language proficiency (SOL).

We find, on the other hand, fewer significant correlations between background measures and assessment outcomes for cohorts 2 and 3. For example, SES becomes less and less associated with academic achievement in general. We do find some remaining traces of the association: SES is significantly correlated with teachers' ratings of math concepts achievement (MC) for cohort 2 (Table 55), and with teachers' ratings of English language proficiency (SOL) for cohort 3 (Table 56). The relationship found for cohort 1 between mother's length of residence in Canada (MRES) and English language proficiency (SOL) is not evident for cohorts 2 and 3.

In general, we can conclude that the association between background measures and assessment measures diminishes as children progress through the school years. The

influence of socio-economic status on achievement is pervasive at the lower grades, but diminishes and is more localized at the higher grades, although it never completely disappears. We interpret the variable "mother's length of residence in Canada" as an indicator of the amount of time the family has had to assimilate to their new surroundings. The results are encouraging, in that by the middle school years this factor (MRES) yields no significant correlations with any of the assessment measures. As well, the measure most indicative of a family's relative linguistic assimilation -- "mother's language of interaction in the household" (MLG) -- shows little association with any of the assessment measures. Taken together, the results indicate that the initial differences between students attributable to background factors are not amplified by the school experience, but rather tend to diminish in influence as the students progress through the school system.

III. CLASSROOM OBSERVATIONS: CODED DATA

The main purpose of the observational part of the project was to gain a detailed understanding of the actual classroom learning experiences of our sample of students. We were particularly interested in the nature and extent of the day-to-day activities in which they were engaged. The importance of looking at classroom activities was emphasized in the educational research literature by Walter Doyle (1983), who pointed out that in order to understand how "the curriculum is realized on a daily basis in classrooms" (Doyle and Carter, 1984) educational researchers had to have a clearer sense of the actual "academic work" accomplished by students in completing classroom tasks. To obtain a descriptive record of the classroom activities experienced by our subjects, as well as the social context in which these activities took place, we organized a regiment of classroom observations.

Observational field notes were recorded during either an entire morning or afternoon session. For each observation, one of the project subjects was chosen as the target child for that session. A total of two sessions was observed for each subject in years 1 and 3; three sessions per subject were observed in year 2. Overall, between 10 and 18 complete observations were collected in each classroom. The sessions were distributed throughout the school year. In total, we collected observations in 35 different classrooms (the project was denied entrance into one classroom).

The field notes consisted of running narratives describing the target child's activities and interactions, which were typed into a laptop computer during the actual observation. Each session was also audio-taped using a transmitter microphone attached to the target child. The field notes were recorded in segments according to changes in activity mode (to be described later). These segments were later coded according to a preformulated ethnographic coding scheme. Briefly, this scheme allowed the target child's behavior to be categorized accoring to three main features: curricular period, activity mode, and participant structure.

A computer program was developed which extracted the codes from the field notes, calculated the duration of each activity segment, and arranged this information into a database which could be fed into SPSSX. Using the AGGREGATE procedure in SPSSX, we calculated the sum of total time spent within each category of Curricular Period, Activity Mode and Participant Structure. We used the results of this first analysis as a guide to collapse the coded categories to simplify the presentation of the results.

1) Curricular Period

Curricular Period was described in the Ethnographic Coding Scheme as a label for a classroom activity described "from the teacher's point of view, that is to say it is the teacher's definition of what should be happening". The categories consisted of well-known subject matter labels. There were 37 original categories which were collapsed into 9 superordinate categories: Language Arts, Math, Science (including the human sciences), Arts and Crafts, Play, Music, Computer, Withdrawal (e.g. for French class, ESL, library, etc), and Administration. Table 57 shows the percentage of time spent in the different curricular periods by classroom. We have arranged the table so that the same-grade classrooms from the four schools are displayed side-by-side (e.g. SK: Schools E C L B). Also, by reading from left to right, we can follow the same cohort through the three years of the project.

At this point we would like to voice a strong caution in interpreting these percentages, especially concerning this particular table. Because we were primarily interested in

classroom activities involving academic work, we decided to concentrate on reading, writing and math activities. In effect we were concentrating on sessions only occuring in the home classroom. As a consequence, certain subjects such as physical education and French were not observed, and subjects such as science (including the human sciences) may be under-represented in our sample. Futhermore, it is impossible to evaluate the absolute magnitudes of the percentages listed without any standards by which to compare them. For example, how much is enough math? 5%? 10%? 20%? We suggest that the best approach to these figures is to treat them **comparatively**, as indications of which subjects receive relatively more or less emphasis in which classrooms. Consistent with this approach, we would like to also suggest that indications of 0% be interpreted as a relatively low incidence of a subject being taught in a classroom, rather than that it **never** was taught.

Table 57

Percentage of Class Time
Spent in Different Curricular Periods

Cohort 1

	Grade SK School				Grade 1 School				Grade 2 School			
Period	E	C	L	B	E	C	L	B	E	C	L	B
Language Arts	27	18	14	18	54	35	41	38	55	46	**	53
Math	0	0	0	4	10	11	4	10	10	13	**	6
Science	3	4	0	0	0	2	2	2	0	0	**	0
Arts & Crafts	16	4	5	11	10	7	9	5	2	6	**	8
Play	19	39	43	24	5	13	10	0	4	9	**	2
Music	3	10	6	7	0	4	4	10	4	6	**	0
Computer	0	0	0	0	0	0	0	0	0	1	**	0
Withdrawal	0	0	0	0	0	0	0	5	0	0	**	6
Administration	32	25	32	36	21	27	31	29	24	20	**	24

Cohort 2

	Grade 2 School				Grade 3 School				Grade 4 School			
Period	E	C	L	B	E	C	L	B	E	C	L	B
Language Arts	45	43	49	48	38	56	24	32	36	45	60	56
Math	11	11	9	8	9	2	23	20	19	14	5	14
Science	2	4	0	1	17	8	14	11	10	19	10	0
Arts & Crafts	2	12	4	3	14	10	12	3	0	2	0	2
Play	1	7	10	10	5	11	3	3	2	2	1	0
Music	2	1	1	5	0	3	1	7	1	3	9	0
Computer	0	4	0	0	0	0	0	1	0	0	0	0
Withdrawal	0	0	0	0	0	0	0	3	10	3	0	10
Administration	35	18	26	25	17	9	22	20	22	13	14	18

Cohort 3

	Grade 4				5				6			
	School											
Period	E	C	L	B	E	C	L	B	E	C	L	B
Language Arts	45	40	27	29	32	38	46	29	59	48	60	44
Math	11	11	10	15	8	8	10	4	11	8	6	16
Science	4	5	6	4	19	20	2	2	3	6	12	8
Arts & Crafts	0	3	0	2	6	1	7	3	0	3	1	3
Play	7	3	9	8	3	0	0	1	0	1	0	0
Music	0	7	0	0	1	1	0	4	0	0	2	3
Computer	0	0	0	1	0	0	2	0	0	1	0	0
Withdrawal	11	10	17	15	9	12	5	14	9	8	0	3
Administration	21	21	31	27	22	19	28	31	18	15	19	23

Not surprisingly, Table 57 shows us that the curricular period with the largest percentage of class time across all grades is Language Arts. What is most striking about the results, however, is the great range across classrooms of how much time is spent in any particular curricular period. Table 58 arranges the periods according to the percentage of time spent averaged across all classrooms, and displays standard deviations and score range. This table shows that Language Arts is not only the period with the largest percentage of time spent by far, but also has the largest range (14%-60%).

Table 58

Percentage of Class Time Spent in Different Curricular Periods: Averages, Standard Deviations and Ranges

Period	Average	Sd	Range
Language Arts	41.1	12.3	14-60
Administration	23.3	6.4	9-36
Math	9.5	5.4	0-23
Play	7.3	10.1	0-43
Science	5.7	6.1	0-20
Arts & Crafts	5.0	4.4	0-16
Withdrawal	4.6	5.8	0-18
Music	3.0	3.1	0-10
Computer	0.3	0.8	0-4

The question which arises, given the substantial variability in percentages for each period, is whether there are any grade-related trends. In other words, does the percentage of time spent in any particular period consistently increase or decrease with grade level? Looking at Table 57 again, we can see little evidence of clear trends from grade 1 to grade 6. It is just as probable to find a high or low percentage within any

particular period at a lower grade as at a higher grade. For example, the highest percentage for Arts & Crafts is a SK class (School E), but the second highest is a grade 3 class (School E) and we even find a grade 5 class (School L) spending 7% of their time doing Arts & Crafts. The only clear trend seems to be a separation between SK and the other grades. In Senior Kindergarten there is a great emphasis placed on play activities, as we would expect, which greatly decreases by grade 1.

2) Activity Mode

We considered the Curricular Period codings as a reflection of the curriculum as planned by the teacher, while the Activity Mode codings to be reported in this section represent more accurately what actually took place -- that is, the curriculum as actualized. Activity Mode describes the activities the target child is engaged in during a period, specifying the modality involved and the nature of the material being used or product being made; for example, "Adult reads narrative curricular material", or "Child constructs (model/handwork/equipment)". There were 103 categories under Activity Mode. These were collapsed into seven superordinate categories: Oral Presentation, Task Talk, Reading, Writing, Problems, Artefact, and Other.

- **Oral Presentation** consists of activities in which the student listens to the teacher reading a narrative or informative text or recounting an oral narrative. This superordinate category also involves oral presentations by either the teacher or a student.

- **Task Talk** consists of those activities in which the classroom talk is relevant to some task rather than communicating content as in oral presentation. This includes oral preparation, in which instructions about some task are given and discussed; oral quiz (question and answer); discussions and questioning regarding language or mathematical "code" knowledge (e.g. spelling, grammer, rules of arithematic); group discussions led by either the teacher or by the students themselves; and one-on-one conferences between teacher and student regarding some task.

- **Reading** activities consist of both reading exercises and reading extended text. The former includes reading where the focus is on the "code", reading comprehension exercises, and oral recitation from a text. Different extended texts are identified: textbooks or basal readers, informative texts and reference books, "real" books (i.e. commercial children's books and novels). Also included in this superordinate category are: searching for a book, either in the library or classroom collection, and reading circle activity in which reading, often oral, is combined with discussion.

- **Writing** activities consist of skill exercises such as handwriting practice or copying from the blackboard, composing short texts such as labels or captions juxtaposed with pictures, taking notes or writing entries into an ongoing journal, or composing extended text as in creative writing. Included in this superordinate category are instances of these activities which take place, not at the student's desk, but at a computer or typewriter.

- **Problems** refers primarily to workbook or worksheet exercises in which the student is required to read a series of problems and write answers to them.

This superordinate category also includes instructional games (e.g. spelling bee, math games, etc).

- **Artefact** activities consisted of those activities which did not involve a text as in reading and writing, but did involve the construction of a coherent mental representation. These activities included Arts and Crafts, making models, observing some phenomenon and recording it mentally, experimenting with an apparatus, and drama (usually improvised role-playing).

- The **Other** category contained unstructured play activities, social talk, and administrative acivities such as clean-up, or disciplinary episodes.

We consider the Activity Mode as a more fine-tuned index of what is actually going on in the classroom than the Period coding. The difference between the two codings is similar to the distinction introduced by Carroll (1963) between *allocated* time and *engaged* time for a task. Allocated time refers to the amount of time offered by the teacher for the completion of a task, while engaged time refers to the actual amount of time spent on task by the student. Of course, the amount of engaged time is always less than allocated time for any classroom task. Anderson (1987) concluded that there were two main findings from the research on opportunities for learning measured by relative amount of allocated and engaged time spent in different tasks: 1) there was great variation between classrooms at any grade level regarding the amount of allocated time devoted to different subjects, and 2) that engaged time was more related statistically than allocated time to academic achievement, although not as strongly as might be expected.

Our Activity Mode codings are more informative than the simple distinction between allocated and engaged time because they specify what sub-activites make up the engaged time (e.g. how much reading, writing, oral presentation etc actually takes place during a period). By looking at the relative amounts of time spent in each type of activity mode within a particular classroom we can establish a sort of activity profile for that classroom. Because we would like such a profile to be representative of what goes on in each classroom we decided to restrict our reporting of the Activity Mode results to the period with by far the greatest amount of allocated time, namely, Language Arts. We felt that the extremely low allocated times found for some of the other periods regarding some of the classrooms would prevent us from including all of the classrooms in an analysis of Activity Mode.

Table 59

Percentage of Class Time Spent in Different Activity Modes: Language Arts Period

Cohort 1

	Grade 1 School											
	SK				1				2			
Mode	E	C	L	B	E	C	L	B	E	C	L	B
Oral Pres.	69	44	52	45	27	17	16	21	20	11	**	11

Task Talk	10	12	14	4	16	14	16	13	11	18	**	19
Reading	13	16	6	13	16	16	28	24	13	24	**	20
Writing	2	14	4	22	16	41	34	24	11	20	**	26
Problems	0	0	0	0	0	0	0	0	7	0	**	0
Artefact	2	0	0	0	19	0	0	7	30	11	**	6
Other	4	14	24	16	5	11	5	10	8	16	**	18

Cohort 2

	Grade 2 School				Grade 3 School				Grade 4 School			
Mode	E	C	L	B	E	C	L	B	E	C	L	B
Oral Pres.	38	12	23	30	10	16	20	15	28	12	12	20
Task Talk	11	13	16	8	21	20	31	27	16	43	27	19
Reading	1	14	12	12	7	13	19	4	1	11	19	30
Writing	2	53	35	45	45	42	16	38	13	24	21	19
Problems	0	4	0	0	2	1	0	0	0	0	1	0
Artefact	4	2	1	3	12	2	5	4	0	2	4	0
Other	12	2	13	2	4	5	8	12	42	8	15	12

Cohort 3

	Grade 4 School				Grade 5 School				Grade 6 School			
Mode	E	C	L	B	E	C	L	B	E	C	L	B
Oral Pres.	19	19	16	18	13	35	7	14	10	13	3	23
Task Talk	19	26	15	19	25	23	29	15	37	17	19	7
Reading	13	11	19	3	24	17	23	18	18	20	29	17
Writing	34	36	32	34	33	16	25	25	13	26	28	8
Problems	2	0	5	1	0	2	1	7	0	0	1	3
Artefact	2	2	8	3	1	3	1	1	0	6	0	7
Other	11	5	4	23	4	3	13	20	22	18	19	35

Table 59 presents the results for the percentage of class time spent in the different Activity Modes for the Language Arts period. As in the results for Curricular Period, we find no consistent trends across grade. That is, there is no progressive increase or decrease within any of the categories with increasing grade level. We can see that even within a grade level there can be substantial differences in proportion of time spent within particular activity modes. The overall range of proportions of time spent within each Activity Mode category is presented in Table 60, which also lists the averages and standard deviations across classrooms. The ranges are quite high for most of the categories. Classrooms vary greatly, therefore, in how much time is spent in different activity modes, and these differences are distributed in a pattern which does not evidence a trend related to grade level.

Table 60

Percentage of Class Time Spent in Different Activity Modes: Averages, Standard Deviations, Ranges

Mode	Average	Sd	Range
Writing	26.0	12.1	2-53
Oral Pres.	21.2	14.0	3-69
Task Talk	18.6	8.1	4-43
Reading	15.9	7.7	1-30
Other	12.8	9.0	2-42
Artefact	4.1	6.1	0-30
Problems	1.1	1.9	0-7

The averages listed in Table 60 indicate that writing is the most prevalent activity mode, followed closely by oral presentation, task talk and reading. These are the four main activities which occur during Language Arts periods. An interesting question to be asked is whether an emphasis in one activity mode is related to a de-emphasis of another category. Since there is a finite amount of time involved, less time in one activity releases more time to be devoted to other activities. To answer this question we correlated the percentages between all pairs of categories; for example between Oral Presentation and Writing. A significant positive correlation would indicate that high percentages in one category are related to high percentages in the other category. A significant negative would indicate that high percentages in one category are related to low percentages in the other category. We found significant negative correlations between Oral Presentation and three other categories: Task Talk, Reading and Writing. It seems, therefore, that if there is a trade-off in how much time is spent in particular activity modes, that trade-off is between activities which involve an oral text versus activities which involve a written or printed text. Classrooms which emphasize oral presentation do so at the expense of reading, writing and the task talk, including discussion, which accompanies them.

In the four tables to follow we further differentiated each of the main activity mode categories -- namely, Oral Presentation, Task Talk, Reading and Writing -- into more specific sub-categories. The percentages listed for the sub-categories are relative to total class time.

Table 59 displays the breakdown of the Oral Presentation category. The modal form of oral presentation consists of students listening to the teacher orally reciting a narrative from a book. This is by far the most prevalent form in Grade SK, but is also found as a prevalent form in some classrooms in the higher grades (e.g. Grade Two, School "E" and "B"). We also find that Adult Presentation by the teacher increases with grade level and is the modal form in many of the higher grades. Somewhat disappointing are the relatively low percentages of time spent in student presentation. Except for one Grade Four classroom (School "E"), the highest percentages for student presentation occur at the lowest grade levels (SK to Grade Two). This is probably due to the popular use of "show and tell" activity in many of these classrooms. Here is an example of discontinuity

in classroom practice. While "show and tell" offers an excellent vehicle for students to attempt to communicate their ideas and impressions to other students and to receive feedback from other students about their presentation, there does not seem to be a similar vehicle for older students to participate in. Obviously, "show and tell" would not be appropriate for older students. But, despite the prevalence of project work at the higher grades, we found few instances in which students were asked to present and explain their work to other students. Perhaps oral presentation gives way to discussion at the higher grades, but discussion is primarily aimed at work-in-progress and not to the finished product. Students in general apparently get little experience in observing and criticizing each other's work.

Table 61

Percentage of Class Time
Spent in Oral Presentation Sub-categories

Cohort 1

	Grade SK School				Grade 1 School				Grade 2 School			
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
List. to Narr.	36	28	39	25	13	9	10	18	7	7	**	3
List. to Oral	13	2	9	0	2	5	0	3	0	4	**	1
List. to Info.	0	1	3	17	2	1	1	0	1	0	**	3
Adult Pres.	5	6	2	2	2	1	6	0	2	0	**	3
Student Pres.	16	7	0	0	7	1	0	1	9	0	**	0

Cohort 2

	Grade 2 School				Grade 3 School				Grade 4 School			
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
List. to Narr.	24	5	14	25	3	7	4	6	15	9	4	11
List. to Oral	8	3	1	2	0	3	3	0	3	0	3	0
List. to Info.	0	1	2	2	2	0	0	0	0	0	0	1
Adult Pres.	3	1	2	0	5	5	5	9	1	3	5	8
Student Pres.	3	1	5	0	0	1	0	0	9	0	0	0

Cohort 3

	Grade 4 School				Grade 5 School				Grade 6 School			
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
List. to Narr.	5	5	9	6	3	15	2	3	5	0	1	10
List. to Oral	0	0	0	0	0	14	0	1	0	5	0	5
List. to Info.	2	0	1	0	0	0	0	1	1	0	0	1
Adult Pres.	11	12	5	10	10	4	4	9	3	7	4	7
Student Pres.	1	1	1	3	0	2	1	0	1	1	0	0

Table 62 presents the percentages of total class time spent in different types of Task Talk. Interestingly, we do not find a large proportion of time spent in oral quiz and testing, nor in talking about the surface aspects of language (code). The prevalence of "packaged" activities involving short answers to exercise questions does not seem to take an oral form. We find, on the other hand, a substantial proportion of time spent in either group or class discussion, or in conferencing (with the teacher or with peers). While there are some classrooms in which there are about equal amounts of discussion and conferencing, most teachers in our sample seem to favor one or the other of these two Task Talk forms. Except for the very low percentage (2%) for Grade Six at School "B" which seems to be an anomoly, the range of percentages of time spent in either discussion and/or conferencing goes from 6% to a high of 40% (Grade Four, School "C"). Previous research in American schools indicates that these figures are fairly high. Sirotnik (1983) reported on the basis of a large observational study directed by John Goodlad and carried out in the early 1970's that on the average only 8% of classtime was spent in the "enriching" activities of "discussion, simulation, role playing and demonstration". We find much more discussion and conferencing happening in the classrooms we observed. The difference may be due to a difference between Canadian and American teacher preferences, or to a difference between teachers active in the early 1970's versus the teachers of today, or some combination of the two.

Table 62

Percentage of Class Time
Spent in Task Talk Sub-categories

Cohort 1

	Grade											
	SK				1				2			
	School											
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Oral Prep.	1	0	1	1	3	0	5	2	4	2	**	1
Quiz	0	2	0	0	0	1	0	0	0	1	**	1
Code	0	0	0	1	0	2	0	0	1	2	**	0
Discussion	2	3	2	0	3	3	4	1	4	11	**	15
Conference	6	8	11	2	10	9	8	10	2	2	**	2

Cohort 2

	Grade											
	2				3				4			
	School											
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Oral Prep.	1	1	1	1	2	4	4	7	3	3	4	2
Quiz	0	6	0	1	2	1	0	2	0	1	0	7
Code	0	0	2	0	0	0	4	3	0	0	4	0
Discussion	8	3	8	1	2	4	17	8	11	24	17	9
Conference	2	4	5	5	15	12	3	8	2	16	3	0

Cohort 3

	Grade 4				5				6			
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Oral Prep.	6	2	2	6	5	1	4	2	13	0	4	1
Quiz	0	3	0	5	0	3	0	5	0	0	0	3
Code	1	1	0	1	0	0	0	0	0	0	4	1
Discussion	2	12	7	2	5	4	22	3	15	7	11	2
Conference	11	8	6	5	16	15	3	5	9	8	1	0

Table 63 presents the percentages for the sub-categories of reading. We can discern few patterns here, other than that the modal reading activity seems to be reading "real" books -- that is, commercial children's books from either the school library or the classroom collection. Another modal activity, especially in the early grades, is "read and discuss", which happens mainly during reading circle. Overall there seems to be less reading than we would expect. However, it may be that our figures underestimate the total amount of reading actually going on in the classrooms. These percentages represent the amount of time in which reading is the main activity occuring. Some reading does happen during other activities; for example, reading from the blackboard during a class discussion. One surprising result, however, is the low percentages for reading textbooks, including basal readers. We cannot offer an explanation for this.

Table 63

Percentage of Class Time
Spent in Reading Sub-category

Cohort 1

	Grade SK				1				2			
	School											
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Skills	1	3	0	0	5	2	3	4	3	2	**	3
Book Search	2	5	0	4	1	0	1	4	1	1	**	2
Read & Discuss	3	8	0	2	1	3	3	0	0	8	**	1
Read Text	0	0	0	0	0	2	0	2	0	4	**	0
Read Info.	0	0	3	0	0	0	0	1	0	3	**	1
Read Book	3	0	2	7	8	6	14	11	8	4	**	5
Read Other	3	0	1	0	0	2	7	2	0	1	**	8

Cohort 2

	Grade 2				3				4			
	School											
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Skills	0	3	0	0	7	0	2	0	0	0	2	13
Book Search	0	1	2	0	0	0	1	0	0	4	1	1

Read & Discuss	0	0	0	0	0	0	8	0	0	4	8	0
Read Text	0	0	0	0	0	7	0	0	0	2	0	1
Read Info.	0	0	1	1	0	2	0	0	0	0	0	3
Read Book	0	7	8	12	0	1	5	3	0	0	5	10
Read Other	1	3	0	0	0	3	3	0	1	0	3	2

Cohort 3

	Grade											
	4				5				6			
	School											
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Skills	1	3	2	0	3	4	5	0	0	2	8	0
Book Search	0	2	0	0	2	0	0	1	0	0	2	4
Read & Discuss	1	0	1	0	0	0	0	0	4	2	1	0
Read Text	2	4	0	0	0	9	0	0	3	0	0	0
Read Info.	1	0	0	0	0	0	0	0	7	4	2	0
Read Book	5	1	14	2	12	3	17	14	1	4	16	11
Read Other	2	1	2	0	5	1	1	4	2	8	0	2

Table 64 presents the results for the sub-categories of writing. A number of interesting patterns are evident. Experience with creative writing begins quite early, as early as Grade SK. We should point out that we included "draw and write" along with "writing extended prose" in the category "creative writing". We consider the early efforts at producing a drawing which tells a story or depicts a scene, along with the captions written onto them, as prototypes of the extended texts we find in the higher grades. A surprising pattern, however, is the sudden drop-off in amount of creative writing in Grade Five and Six (except for one Grade Five class, School "E"). Activities aimed at developing writing skills occur at all grade levels, including Grades Five and Six. These involve either copying prose from the blackboard or writing answers to worksheet exercises. Journal writing is particularly prevalent at the Grade Two and Three level. Writing informative prose occurs only in a few classrooms, and we find little of it in Grade Five and Six. We would expect more emphasis on composing informative prose at the higher grades since this type of prose will be greatly demanded from these students when they progress to high school.

Table 64

Percentage of Class Time
Spent in Writing Sub-category

Cohort 1

	Grade											
	SK				1				2			
	School											
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Skills	0	14	0	9	5	6	14	7	1	0	**	7
Labels/Captions	1	0	0	7	1	4	3	8	0	2	**	1

Test	0	0	0	0	0	0	0	0	0	0	**	1
Notes	0	0	0	0	0	0	0	0	0	0	**	0
Journal	0	0	0	0	0	1	0	0	2	0	**	0
Creative	0	0	4	7	10	27	16	2	6	15	**	11
Informative	0	0	0	0	0	1	1	0	1	0	**	0
Other	0	0	0	0	0	3	0	8	0	2	**	6

Cohort 2

	Grade 2 School				Grade 3 School				Grade 4 School			
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Skills	8	7	11	6	18	5	2	27	4	5	2	12
Labels/Captions	0	1	6	0	1	3	0	5	1	0	0	0
Test	0	0	2	0	0	0	0	0	0	0	0	1
Notes	0	4	0	1	0	0	0	0	0	0	3	0
Journal	6	20	3	8	17	8	0	4	0	0	5	2
Creative	13	23	10	19	9	15	9	2	8	15	6	0
Informative	6	0	0	10	0	2	5	0	0	3	4	0
Other	0	0	3	1	0	10	0	1	0	0	0	4

Cohort 3

	Grade 4 School				Grade 5 School				Grade 6 School			
Sub-category	E	C	L	B	E	C	L	B	E	C	L	B
Skills	1	0	5	9	0	0	19	9	2	11	15	5
Labels/Captions	4	3	0	2	0	0	2	6	3	0	1	0
Test	1	0	0	2	0	0	0	0	0	0	1	0
Notes	0	0	0	0	0	0	2	0	0	2	5	0
Journal	0	0	0	6	4	4	0	3	0	4	0	1
Creative	16	24	18	12	29	4	1	0	4	1	5	0
Informative	9	4	0	0	0	8	0	0	4	0	0	0
Other	3	6	9	2	0	0	1	7	0	9	2	2

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3) Participant Structure

Participant Structure identifies the participants involved in a classroom activity. For example, the teacher may be addressing the whole class, a particular group of students, or meeting individually with a student. A student may also be participating without intervention of the teacher, either individually, in a dyad, group or with the whole class. There were 43 categories in the original coding scheme, many involving other adult participants (teaching assistants, other school staff, and parents). After a first analysis we found that most of the observations fell within seven categories. Table 65 presents the results for percentage of class time spent in different participant structures. Table 66 presents the averages across classrooms for each category, along with standard deviations and ranges.

Table 65

Percentage of Class Time Spent in Different Participant Structures: Language Arts Period

Cohort 1

	Grade SK School				Grade 1 School				Grade 2 School			
Part. Struc.	E	C	L	B	E	C	L	B	E	C	L	B
Individual S	2	0	2	24	11	10	32	26	32	16	**	36
S + Class	3	5	0	0	4	0	0	2	6	0	**	0
S + Group	5	5	3	3	20	39	2	8	15	27	**	11
S + S (Dyad)	0	18	21	10	6	4	11	6	10	9	**	8
T + Class	76	58	25	34	32	17	24	17	26	26	**	12
T + Group	5	2	8	5	15	9	5	10	1	14	**	5
T + Student	2	6	13	1	5	3	21	13	11	3	**	7
Other	7	5	28	24	8	18	6	18	0	6	**	20

Cohort 2

	Grade 2				Grade 3				Grade 4			
Part. Struc.	E	C	L	B	E	C	L	B	E	C	L	B
Individual S	16	15	40	38	43	14	21	14	14	29	11	20
S + Class	0	1	5	9	0	0	1	0	2	2	0	6
S + Group	18	18	4	4	2	26	8	12	20	14	8	1
S + S (Dyad)	8	17	5	5	16	15	7	1	3	16	5	4
T + Class	44	31	29	33	16	21	32	21	29	17	40	55
T + Group	5	9	2	1	13	18	6	15	0	7	18	0
T + Student	1	1	7	2	0	1	1	3	4	2	3	1
Other	8	7	8	9	9	4	23	35	29	11	16	12

Cohort 3

	Grade 4				Grade 5				Grade 6			
Part. Struc.	E	C	L	B	E	C	L	B	E	C	L	B
Individual S	14	5	34	27	28	5	36	29	25	29	23	44
S + Class	2	3	1	4	1	0	1	3	1	0	0	0
S + Group	14	13	7	15	16	23	3	14	8	27	2	13
S + S (Dyad)	10	7	12	12	26	9	10	6	15	9	15	1
T + Class	36	28	24	22	20	15	23	28	28	18	46	33
T + Group	6	13	9	5	2	34	11	11	13	5	5	4
T + Student	4	2	10	1	2	0	4	3	5	3	2	3
Other	13	29	3	14	6	14	11	7	5	8	7	2

Table 66

Percentage of Class Time Spent in Different Participant Structures: Averages, Standard Deviations, Ranges

Participant Structure	Average	Sd	Range
T + Class	29.6	13.4	12-76
Ind. Student	21.9	12.3	0-44
Other	12.3	8.7	0-35
S + Group	12.2	9.0	1-39
Dyad	9.6	5.9	0-26
T + Group	8.3	6.7	0-34
T + Student	4.3	4.5	0-21
S + Class	1.8	2.3	0-9

As we would expect, the greatest amount of class time is spent in the teacher addressing or being involved with the whole class. The range between classrooms, however, is very large -- from 12% (Grade Two, School "B") to 76% (Grade SK, School "E"). Teachers seem to differ greatly in how much they maintain control over students by planning whole-class activities. The next most prevalent participant structure is the student being involved in individual activity, usually refered to as "seatwork". On the average, students spend about 1/5 of their time in individual work.

The remaining class time is fairly evenly divided between groupwork (12.2%), working with one other student (9.6%), and groupwork with teacher intervention (8.3%). If we take the dyad as constituting a small group, then we can say that groupwork constitutes the third most prevalent participant structure.

In general, we can say that students typically spend 1/3 of their time in teacher-directed whole class activity, 1/3 of their time in some sort of group work, and 1/5 of their time in individual seatwork. Refering again to the American data reported by Sirotnik; he described three modal participant structures: 1) the teacher explaining or lecturing to the whole class, 2) the student working independently, and 3) the teacher and whole class involved in general routines. Our results differ in the third modal structure; ours being involvement in groupwork. This may be a result of the rapid growth and popularity of cooperative learning approaches in the last ten years or so.

IV. LITERATE THINKING IN THE CLASSROOM

The analysis of the codings reported in the previous section allowed us to look at the period, activity mode and participant structure aspects of the students' classroom experience. We felt, however, that in order to better understand literacy acquisition in the classroom we needed a further analysis which viewed each classroom activity as a "literacy event" and which estimated the relative amount of "intellectual challenge" provided by each activity. Intellectual challenge was estimated by identifying the types of thinking considered to be necessary for successful completion of a task and the relative amount of mental effort judged to be associated with these thought processes.

Differing concepts exist about what constitutes literacy, and how it is acquired. A common view of literacy equates it strictly with the activities of reading and writing, and through them, with the acquisition and display of specific curricular content. However, a more empowering concept of literacy has been emerging which places more emphasis on the generativity of the thought processes associated with reading and writing; what we call "literate thinking". Literate thinking has been defined as the ability to use language in goal-directed ways to learn and communicate (Langer 1987, Wells 1987). In a similar vein, Calfee (1988) calls for an extension of assessment of literacy acquisition by school boards and educators beyond standardized measures of functional literacy to more qualitative assessments of "critical literacy".

Surveying the literature on the amount of intellectual challenge or cognitive demand exhibited by classroom tasks, we found a recurring broad distinction between "reproductive" and "productive" or "constructive" thinking. The former refer to tasks in which the student is asked to do no more than retrieve previously learned or memorized information, in the form of facts or procedures. Constructive thinking requires a student to do a certain amount of problem-solving; not only retrieving information but also transforming this information in order to use it. Whether the student engages in reproductive or constructive thinking depends on the nature of the task or activity encountered. Wolf and Perry (1988) distinguish two general types of classroom task: "packaged" activities in which the informational environment is greatly restricted and structured, as in textbook or workbook exercises or in teacher-directed question-and-answer discussions; or "unpackaged" activities in which the student has to face the "noisier" environment of actual experience or having to deal with a number of information sources. "Unpackaged" activities are more challenging intellectually because they require self-directed goal-setting and decision-making.

We constructed a three-level coding scheme as follows:

1. **Reproductive Thinking:** Activities eliciting short responses involving the recognition or retrieval of information, simple computations, or simple means-ends procedures. Examples include: completing of workbook/worksheet exercises, copying, listening to an oral presentation or reading recitation without a need to use the information, answering questions to display previously-learned knowledge, replicating a modelled object or picture (as in arts and crafts).

2. **Constructive Thinking:** Activities requiring sustained mental effort involving the need to deal with a substantial amount of information which has to be organized and transformed to meet task goals or formal requirements. Also involves more choice and complexity in means-ends processing. Examples include: generating a number of ideas on a topic or

issue and organizing them, reading in order to write (searching for relevant information), constructing something with an aesthetic or functional goal in mind rather than a model to be reproduced, discussing the point of a story or essay, and considering audience expectations and needs when composing a written text.

3. **Meta-cognitive Thinking:** Purely reflective activity consisting of self-criticism and self-evaluation in order to make explicit and possibly change one's assumptions or methods. This is the highest form of constructive thinking which involves taking control over one's own learning ("learning to learn") by considering the implications of past actions and choices and making long-range plans for the future. We included this level because we believe that elementary school children in the upper grades are capable of such self-reflective thinking. However, we found so little evidence of classroom activity or discussion aimed at this level that we will not discuss it any further.

A temporary researcher was hired to code the field notes according to the three-level coding scheme. A single score (Level 1 to 3) was assigned for each activity segment as found in the original field notes. Then, for each classroom, the total amount of time spent within each level was calculated and transformed into a proportion score. Because of the fact that a focus on literacy events was introduced to the field workers in the second year of recording observations, we felt that the first year observations would not lend themselves to reliable coding by the new researcher who had only the field note observations to work with. Table 67, therefore, reports the results for the second and third year observations only. However, this sampling still offers us the opportunity to look at four classrooms (one classroom from each of the four schools) at each grade level from Grade One to Grade Six.

Table 67 shows the proportion of time spent in activities requiring Reproductive versus Constructive thinking. As with the results for Period, Activity Mode and Participant Structure, we do not find any kind of across-grade trend. In particular, there is no evidence of a progressive increase in proportion of time spent in activities requiring Constructive thinking. The classroom with the lowest proportion of Constructive thinking in fact is a Grade Six classroom (School "B"). The classroom with the highest proportion is a Grade Three classroom (School "L"). The relative proportion of activities requiring Constructive thinking ranges from 12% to 55%.

Table 67

Percentage of Class Time
Spent in Different Levels of Literate Thinking

Cohort 1

	Grade							
	1				2			
	School							
Level	E	C	L	B	E	C	L	B
Reproductive	60	69	60	70	77	57	**	76
Constructive	40	31	40	30	23	43	**	24

Cohort 2

	Grade 3 School				Grade 4 School			
Level	E	C	L	B	E	C	L	B
Reproductive	68	53	45	66	83	49	52	72
Constructive	32	47	55	34	17	51	48	28

Cohort 3

	Grade 5 School				Grade 6 School			
Level	E	C	L	B	E	C	L	B
Reproductive	57	75	71	69	56	56	80	88
Constructive	43	25	29	31	44	44	20	12

We assume that curriculum content changes and becomes more complex towards the higher grades. This does not guarantee, however, that the activities through which the curriculum is experienced will actually require more challenging forms of thinking, as our results show. In other words, even though the conceptual content of the curriculum may become more complex, what the students are asked to do with the information may not change.

We would like to point out that we are not advocating that classroom activities should always require constructive thinking on the student's part. Challenging tasks are stressful, and it has been found that students may attempt to sabotage challenging tasks by renegotiating them into more routine and less challenging tasks (Doyle, 1983). Also, there is a role to be played by Reproductive thinking tasks. Most of the procedural and heuristic knowledge essential to mathematical problem-solving is taught through these activities (Covington,). What should be aimed at, however, ia a **balance** between these two types of activity. The question of how much of either type of activity is to be aimed for is an empirical question; but it seems from our data that approximately a 50-50% split is characteristic of those classrooms in which the most constructive thinking takes place.

Although we accept that there is a role to be played by activities requiring reproductive thinking, we also emphatically point out that activities requiring constructive thinking may be utilized at any grade level, even in the earliest grades. The teachers in our sample seem to agree, in that the Grade One classrooms evidenced from 30% to 40% of their activities requiring constructive thinking -- higher than eight of the classrooms at a higher grade level. The ultimate aim should be to take gradual control over the learning process in order to successfully make the transition to high school which puts great demands on the student's ability for self-directed learning. Certainly, any classroom at the higher grade level which exhibits a preponderance of reproductive thinking activities would not facilitate this transition. We speculate that in such classrooms, reproductive thinking activities are being used both as a familiar and easily controlled vehicle to transmit curricular content and as a form of classroom management. Short tasks requiring less effort and producing less stress on the students creates an environment in which twenty or so students can be easily managed but not intellectually challenged. The preferability of activities requiring constructive thinking

is nicely stated by Wolf and Perry (1988) who warn that present classroom practice is promoting the "literacy of scribes and clerks" rather than the "literacy of authors and thinkers":

> ...we want to underscore our strong impression that continued symbolic learning is constricted or diverted unless classroom environments and teachers provide children with more than 'basic skills' training in the rules of codes. The encouragement to use symbolic skills in the context of complex and engaging problems, the opportunity to examine and make choices, and a climate that supports reflection -- these appear to be at least some of the characteristics of classrooms that communicate to children a rich conception of literacy. (Wolf and Perry 1988, pp. 51-52)

To give some content to the coded data reported in section III, we will present in the section to follow some examp[illegible]om each grade level of classroom tasks requiring varying degrees of literate thin[illegible] Through the examples we hope to communicate some of the more subtle details of what makes some tasks more challenging and productive than others. The examples consist either of descriptions of classroom episodes taken from the observational field notes, or transcriptions of conversation as they were selected from the audio-tapes and transcribed by the field researchers themselves.

Examples from Grade One Classrooms

Example 1:C[1]

> T gathers all the children on rug in the calendar centre. X comes to join the children. As he sits down, X puts up his hand and asks T if he wants to read his story. T replies that he would love to read it very much but he doesn't have time now because he has something important to discuss with the class. T tells the children that they are forced to spend too much time on cleaning up because they don't follow the rules. T asks the children to tell him the rules and he is to write them on the easel board. T writes: Rules for CLEAN UP on top of the easel board. X repeats the line to himself after T finishes writing. T then asks the children to suggest rules they know. X and a few children put up their hands. T discusses the rules with the class and then writes them down... T continues to discuss with the class about the rules and has written: 1. We keep finished things 2.We keep things that are almost finished. 3. We keep things in buckets and boxes. 4. We put away bits and pieces? ...T ends the discussion with a review of the rules. He asks the children to repeat the rules a couple of times.[2]

---

[1]Examples are numbered sequentially. Also indicated is the coded school designation (E,C,L,B). In this way, by combining the grade and school one can locate the classroom from which the example is drawn on tables presented in previous sections of this chapter.

[2]To protect confidentiality regarding the participants' identities, we deleted the actual names of teachers and students from the reported examples, and substituted either hyphens or T (teacher), X (target child) and S1, S2 ... for other students.

This example reminds us that an important part of developing an effective learning environment in the classroom is the establishment of routines and rules which help accomplish necessary organizational tasks as well as limit disruptive behavior. An interesting feature of the example described above is the teacher's attempt to actively involve the students in the rule-making process. Althought this episode does not involve curricular content, the manner in which it engages the students qualifies it as a "literacy event". Students are asked to recall on their own the established rules for "clean-up". This encourages them to formulate these rules in their own words. The rules are recorded by the teacher as a list, and are discussed by the whole class. The implicit message communicated by the way the teacher handled this issue is that rules are not arbitrary constraints but are there for good reasons, and the best way for students to remember these rules is to understand in their own way what these reasons are. Another important lesson implicit in this activity is that ideas may be more easily remembered if explicitly stated and formulated in the form of a list.

Example 2:C

> I take the chance to ask T to explain to me why he has the blackboard divided into columns (each of which is assigned to a child). T says that the columns are designed to give children a chance to put their work up for display. They can make designs on the blackboard. Underneath the blackboard, T sets an activity sheet for children to check off the column. It says Sand/Water, Reading, Weighing, Listening, Painting, Cut and Paste, Building and Drama. T asks the children to check off the column for the activities they engage in during free activity time.

We have here another example of a classroom practice which qualifies as a "literacy event" because of the implicit lessons communicated rather than the specific curricular material involved. The activities taking place are typical of most Grade One classrooms; mostly arts and crafts, with some reading. However, the teacher has instituted a vehicle by which students can both keep track of what they are doing, as well as share their work with other students. This is a creative way to introduce young students to the idea of an audience, and to the notion that what one produces can become a public artefact for others to see and appreciate. The other lesson being communicated is that when multiple tasks are being attempted, an external record can help monitor progress in those tasks.

Example 3:L

> Patrick is sitting in a chair near the teacher's chair, beside the blackboard, and is reading from Mr. Mugs plays ball. His reading alternates with periods of discussion based on the text read previously and on the child's own experiences.
>
> T: What can the frog do? .
>
> X: Jump
>
> T: Tell me in a sentence please
>
> X: He can jump.
>
> T: Have you ever seen a real frog?.

[Patrick nods affirmatively]

Where? ..

X: A ..my dog .I mean- . one day we-

uh ...we- my dad went fishing . and

one just jumped out and we- and we

got it and we put it downstairs in

our basement

T: Where did you put it?

X: In our basement

T: And what happened to the frog?

X: ..It gets swallowed (=pronounced

swalmened) by our dog ..

T: It did?

X: Yeah ..

T: So I guess {the frog} is no more is it?

This interchange between teacher and student represents a typical reading conference in which the teacher asks questions related to the text (What can a frog do?), as well as encouraging the student to make links between what is being read and his/her own experience. In this case the student is encouraged to give an account of his experience with a frog. Indirectly, the student is learning to make the effort to retrieve prior knowledge or experience relevant to a topic being read about.

Another interesting feature of this interchange is the teacher's request for a complete sentence response to the question "What can a frog do?". This requirement is apparently not active for the rest of the discussion in which the talk by both teacher and student consists of incomplete sentences, as is the case with natural conversation in general. The student is experiencing early in his academic career the difference between formal and informal language. In this case, the formality involves a question from the teacher which is really a request for the student to display curricular knowledge, that is, to state a fact encountered in the text just read. We have in this example a shift in language context from a formal testing context to an informal conversational context -- each with its own requirements.

Example 4:L

X: Can a frog sing?'

T: What do you think -----?

Can a frog sing?

X: No ...

T: Why do you say no? ..

X: Because frogs can't talk ...

T: If you're a person [you can talk] a frog cannot talk That's .a very good answer . Now let's pretend ..that you're . another little frog.... Would you pretend you're a little frog ----- would you sit down near ----- ? ..

Now if you were a little frog and she were a little- was a little frog ... do you think that you can hear her ..trying to sing or make noises?

X: ..Hm (=not sure).

T: Why not? ..

X: Because it can't sing ..

T: I guess when you're talking about the word 'sing' it has to do with your meaning of the word 'sing'. What does the word 'sing' mean to you?

X: ....* *?

T: Like in a choir you mean if people- a persons choir ...a people choir.. a persons choir like Mr. ------'s [the teacher who conducts the choir in the school] choir that <will be> singing to you .

They'll be singing to me too really but sometimes when you use the word 'sing' ...when you're thinking about an animal ..it- it could mean a special sound . so if I say to you 'Can a bird sing' ..what do you think about that question? ..

So you see there your answer could change couldn't it? ....

One essential lesson to be learned in acquiring full literacy is that a word, or a whole text, may have multiple meanings and therefore multiple possible interpretations. In the example above, we see that the teacher attempts in a creative way to have the student realize that their answer to the quesion "Can a frog sing" depends on their understanding of the word "sing". First of all the teacher accepts the student's own answer, restating explicitly the underlying argument (People sing because they can talk. Frogs don't talk. Therefore they can't sing). Then the teacher attempts to have the student along with another student enact a familiar scene -- that of a a couple of frogs "making noises" together. When this fails to change the student's mind, the teacher asks what the word "sing" means to the student. Unfortunately, the student's answer is inaudible on the tape; but from the teacher's response we can infer that he mentioned something about singing in a choir. The teacher then states directly that "sing" when used in connection with an animal may mean the act of making "a special sound". A familiar example is given by asking the question "Can a bird sing".

Underlying this discussion between the teacher and student is the difference between a literal and figurative interpretation of language. In the end, the teacher has not been entirely successful in communicating a figurative meaning of the word "sing" used in the context of animal communicative sounds, but certainly not from a lack of trying. On the other hand we cannot really fault the student for not clueing in. The concept involved here is a complicated one, and probably requires a more in-depth treatment involving examples of literal and figurative uses of common words. The teacher probably realized this after failing to persuade the student to change his mind, and brings the session to a close by becoming more didactic ("So you see there, your answer could change couldn't it"). This example shows that for literacy events to be effective in the classroom, it is necessary not only to employ effective teaching techniques but also to attempt to estimate the complexity of the concept being taught and the type of treatment it requires. In this case the teacher is probably right to bring the episode to a not-

completely-successful close and possibly save the lesson involved for a more complete treatment at another time, probably involving the whole class.

Example 5:B

Children have just gotten back from recess. X takes the box that holds a dental model to the class and is waiting beside T. He is about to do a presentation on the model. The dental model is made of plastic. There is an upper and a lower jaw which could be moved up and down. And on the upper jaw, there are about 5 teeth. Behind the teeth, there is a loose piece of plastic gum which could be hooked around the front teeth.

T: okay. ----- has something that he likes to share with you...

X: it's like.. one * commercial... some people... like don't want the space in my teeth

T: here... I'll hold the box

X: okay [handing the box over to T] so um. so. my mum__ so when I was doing a Kel__ Kellogg's commercial. <those> rice crispy. um. like Kellogg's people didn't want the space in my teeth. so we went to the dentist... and we got this... and then it likes a.. big.. tooth to go on my teeth [X is hoding up the model.

T: can you put it in? (=can you put it into your mouth?)

X: and it goes....like that! [X puts the loose piece of gum behind his front teeth.] they cost a hundred dollars each...

S1:how do you use that thing <sticking on it>?

T: well it hooks around the teeth

X: yeah like.. see this spaces in the teeth right there? this little... like pulling.. going in your teeth .....[X demonstrates again. But the plastic gum doesn't hook around the teeth. It falls down.] **! <this> thing is {fragile}!

T: ...okay... see it fits in between the teeth like that

S2:let's see

T: that little pink part. rest on his gum. and then <there's a little space> fits in between the teeth. and it would just stay there

S3:is that a stick gum?

T: yes...older people or people who've been in an accident that they have their teeth knocked out. they have. a whole <row> of teeth like that. and they have to make a gum that holds them together...

X: can I let. let. the people see it. like__ around? (=Can I pass it around and let people see it?)

T: okay

"Show and Tell" presentations occur in most lower grade classrooms. Although these presentations involve oral language, they make more demands on the students than conversational talk; namely, to be more explicit, organized and explanatory about what

they have to say than they would normally be in an informal conversation. In a sense, therefore, these presentations constitute a "transitional" mode of text-making between conversation and written text, in which the communicative features of written text (e.g. explicitness, coherence, completeness) are attempted in an oral mode.

In the example above, we can see that the student is having great difficulty in being intelligable. When attempting to explain how the gum section (bridge?) is attached to the other teeth, the student doesn't quite succeed in demonstrating how this works. The teacher then intercedes and essentially takes over the presentation. This shows that the presentation itself has become the primary concern, rather than the student's attempt at a presentation. We would claim that the learning opportunity offered by the "show and tell" activity has been missed in this case. Rather than directly repairing the failed communication or demonstration, an effective intervention would have focused the student's attention on his/her own attempts in a critical way to try to improve the performance. In this case, for example, the student could have simply been asked to try again, guided by some straightforward requests for clarification.

Example 6:B

T: -----. math. reading or writing? [X is thinking of what to choose.]

X: reading... I mean writing. I think. [In the background, T talks with a boy.]

T: okay. what are you going to make? ...what are you going to start with?

X: ..making a book.

T: okay. ..{do you *__}. do you have any idea what you are going to make your book about?

X: {**. when I was}__ mm....[X is thinking.]

T: do you know any {story}. that you may like to write?

X: no.

T: no? <may be>. you could do one about "xxxxxxx". ["xxxxxxx" is a book that the student teacher just read to the class earlier.]

X: <I'll think of it>.

T: okay? okay.

----------x----------*This symbol represents the passage of a few minutes or more*

X: Miss ----------... I need__ I might need a little help. making this.

T: well don't do that on your paper. now. before you can write a story. you have to decide what you're going to write about.

X: I think__ cats and. kittens and. dog__ puppies. {I think}.

T: {what are} you going to say about cats?

X: cats have kittens.

T: you know. you know what (?) you should finish the book you started yesterday. it's in your red folder.

X: I don't really. I think I would like to make a n__ new book {**}

T: {no. I} think I'd like you to finish that. it's in the orange box. I think. not in you red folder.

[T goes away and lets X continue working the story that she has started writing yesterday.]

Decision-making at the beginning of any classroom activity offers the opportunity of teaching something about setting goals or managing tasks. Crucial to providing this type of opportunity, however, is allowing the student to have some degree of control over the decision-making process. In the example above, the teacher allows the student to choose what to do during a free activity period. The student chooses to do her writing. In the first interchange, the teacher terminates the search for a topic to write about by making a suggestion which the student says she will consider. A little while later, the student returns still in search of a topic having not accepted, it seems, the teacher's suggestion. The teacher tells the student that she has to make a decision about what to write about before she can start writing. The student makes a suggestion which is then ignored as the teacher again terminates the decision-making process by requiring that the student finish the story she had begun yesterday.

With some students, trying to reach a decision about something may be a difficult and time-consuming process. It would be impractical, therefore, to lead a student or group of students through a full-fledged decision-making process each time a decision needs to be made. Occasionally it is necessary to impose a decision, as in the case above, to fulfill other goals; for example, to make sure students complete unfinished work as in the example above. The problem with the episode above is not with the final resolution, but the ambivalence of the context in which the student seemingly is given the responsibility to reach a decision but has it taken away in the final analysis. In the long run, if students are to internalize intellectual procedures such as the ability to make decisions, they have to encounter unambiguous contexts concerning whether they have or do not have control over an activity, or part of an activity.

Example 7:E

T: I want you to think about the story we read about the caterpillar. I want you to think about the beginning part of it the middle part of it and the ending part of it.

S's: [react with sounds]

T: Decide which part you {would like to make a picture of}...

Then we could make a book that has a beginning part, a middle part, and a last part.

----------x----------

X: {Miss -----} do we have to <pick> a story?

T: No But we have to- you have to arrange it in the right order.....

Obviously, students in Grade One are not capable of writing a full-fledged story in prose, although they are quite capable of recounting a story orally. In the activity described above the students are being given the opportunity to make a "book" out of drawings which conforms to the structure of a story. Although the students are involved in a

familiar activity -- drawing -- a new twist is introduced in that they have to decide what to include in the drawing so that it represents either the beginning, middle or end of a story. This episode represents a productive context for these students in which an old skill (drawing) is combined with a new challenge (deciding on content based on story structure) to produce an artefact with text-like features (a "book") for which they will probably feel a heightened sense of accomplishment. We have here a good example of the introduction of notions about text at an early grade level which will help to facilitate the acquisition of written composition skills in the latter grades.

Example 8:E

[T is conferencing with a group of students about their "story writing"]

T: Some of you have a story already done Some of you are still thinking what you are going to write.. ------ [S1] do you want to read it? The part you have done now?... Can you read the part that you've done now?

S1: Once upon a time I saw a ghost. I-I saw a pumpkin [reads]

T: Ok. super! Can you tell [about] the picture here too? What do you like about ------'s [S1] picture?

X: Yeah

T: WHAT do you like about it?

S2: The gho- I like the ghosts

T: Fine. -----? [target child]

X: {I like the pumpkins}

S2: I like the pum- pumpkins

S3: {I like the *}

T: {-----?}

S3: I like the ghosts

X: I like the ghosts

T- _____?

S4: I like the pumpkin

T: And I like the way she told about her story. ----- do you want to read your story then we'll look at your picture.

"Story writing" at this grade level consists usually of drawing a picture onto which labels or captions are printed. These "picture-stories" can still be treated as "texts" that can be understood and appreciated by others (an audience). In the example above, a student is presenting her picture-story to a few peers. The teacher asks them what they "like" about the picture. In this way attention is being directed to the positive features about the student's attempt. As a consequence, we do not sense the usual tension about evaluation of one's work by others. Hearing what her peers like about her picture-story would be very reinforcing to the student involved. The teacher accepts what the students have to say although for the most part they are simply indicating which part of the drawing they like. At the end of the episode, the teacher expresses her own reaction ("I

like the way she told her story") gently drawing attention to the language contained in the picture story. Without being heavy-handed about it, the teacher is beginning to establish the primacy of written language in school work.

Examples from Grade Two Classrooms

Example 9:E

T reads text out of a book about pigs. Ss are supposed to listen and use that information to fill in blanks in text up on the experience chart.

T: Today's story on the experience chart pages is a little different I've left some words out you need to fill in 'About Pigs' I wished that I lived on a -

Ss: Farm

T: Oh-oh * * --------? [T requests spelling]

S1: Farm [T writes word]

T: I like -. --------?

S2: Mud!

T: True That's not the word that I'm thinking about But that-that would work -------?

S3: Pig?

T: Pigs 's okay..

S?- Starts with a "P"

S?- P-I-G-S [T writes word]...

[T goes through the remaining blanks to be filled in.] ---------x---------

[T has several Ss read the complete text]

The activity described above is a typical example of a 'reproductive' thinking type of task. In the first instance, the students listened to the teacher reading an exposition about pigs. Then the students, guided by the teacher, read the same text as printed on the activity chart with certain words or phrases missing which they attempted to fill in. The beginning portion of this question-and-answer segment is reproduced above.

The essential goal of this task is to recall information as previously encountered in a text. But even this goal is never explicitly stated. When a student offers a plausible completion ('mud') to the incomplete sentence 'I like ---', the teacher recognizes the answer as plausible ("True...that would work"), but rejects it saying that it is not "the word I am thinking of". Curiously, the teacher indicates the criterion for correctness as being what she has in mind rather than explicitly re-stating the goal of the task which is to recall the facts (words and phrases) as stated in the original text. Although the task is highly structured it risks being meaningless to the students since no explicit purpose is ever stated or discussed. As adult observers we recognize that the activity at this point is aimed primarily at developing memory skills, as is evident by the final exercise of having the complete text read by a number of students to consolidate the

information.

The activity did not end here. The students were then instructed as follows:

T gives instruction on how to complete and assemble a booklet in which Ss will do the same task individually as the one she just did the class.

T: Today's booklet is a little different First thing that's different is that the cover or the title page has nothing on it

S?- Ohoh! (concern)

T: I'm going to turn the easel around so you can see it from your desk And you need to write the title "About Pigs" And then you decorate your pig face

Ss: [chuckle]

T: Second thing that's a little different... The words that we have filled in on our experience chart are also blank on this paper You need to fill in the words so you-you'll need the story that is on the experience chart to do that Let's read through it

T&Ss: I wish that I lived on a-

Ss: farm

T: What word would you print in?

S?- Pig

S?- Farm

T: What word would you print in? ------?

S1: Farm

T: You may look on our story up on the experience chart if you need to

[T continues questioning until all the blanks are filled in again.]

---------x---------

T: What's the very first thing you do with this booklet? The very first thing you do? -----?

S3: Get them

T: You get the papers We're learning this is good This is very good I'm very pleased The second thing you do. -----?

S4: uhm- Colour it

T: Or

S4: Cut it

T: Depending if you get a pair of scissors you use them if you don't have a pair of scissors you can cut them This one there's another step ... Not only do you need to colour but You need to fill in the- ?

Ss: Pages

T: --------?

S1: pages

T: Pages but what's on the pages that you need to put? -------?

S5: Words

T: Words And the very front page of the cover you need to write-print Print what? -----?

S6: Uhm-uh

T: You know what that's called? 'About Pigs' is the ... ------?

S5: Title

T: the title of the booklet

From the above interchange we get the idea that these students have made booklets before. The novelty of this booklet is the absence of a title and the nature of the task involved ("fill in the blanks"). There is little challenge left at this point, however. The title and the words to be filled in are visually available on the activity chart. The goal of the task has not changed -- what has changed are simply the materials, accompanied by a shift from whole class "discussion" to individual seatwork.

The last segment of conversation reveals the whole point of these exercises. The students are learning a particular script -- the procedure involved in putting together a booklet. On the surface we could say that they are learning something about textuality; that is, they are being lead through the stages of producing a "text" without actually having to *compose* a text. That this scriptal knowledge is the main objective of this whole exercise is corroborated by the teacher's enthusiastic praise for the student's display of this knowledge in the final question-and-answer sequence.

We would claim that product is being emphasized in this type of activity over and above process. Content was generated purely through memory recall, performed so many times as to become boring. The task required no goal-setting or planning on the students' part. Self-directed content or idea generation, goal-setting and planning are essential aspects of the composition process. Of course, the argument could be made that composition is such a complex process that students in the early grades need the kind of structured task described above. However, structure and intellectual challenge need not be mutually exclusive. Recall the picture-book example from Grade One [Example 7:E]. In that example, students also produced a booklet by drawing and combining pictures representing the beginning, middle and end of a "story". The students learned something about the composition process by having to decide what to put in each drawing so that it conformed to some part of a simplified story structure. Within the script of constructing a booklet, therefore, these students were given some control over planning and decision-making.

In the example described above, the "fill-in-the-blanks" task was a good idea. To make the task an opportunity to learn something about the composition process students could have been required to generate their own sentence completions without having recourse to the original text. They could also have been asked to justify their offerings and discuss them with other students. In this way, the structure of the task could have been used to isolate and work on the content-generation and evaluation aspect of composition.

Example 10:B

T comes in. She tells X to sit on the floor. T announces that the grade-2's are going to talk about making a rhyme and that the grade-3's can help along.

T asks the class what are needed to make a rhyme. ------- says "Two words." He is asked to specify what he means. ------ gives an example. Then a few other students also give examples.

T reads out loud to the class a chant that she copied from a book. The chant goes like this: Oh fish in the sea Come listen to me My wife begged the wish From a magic fish.

T reads the chant twice.

T says they will keep the first two lines of the above chant and will make up a new line together.....S1 suggests "My dad begs a wish"; S2 suggests "Come and talk to me"; S3 suggests "Come and have some tea. " The poem is finally like this: Oh fish in the sea Come have some tea Drink it with me And let us be free.

T writes the poem on the board. X plays with the mic and chats with Jimie and a boy throughout this activity.

T asks Ss what they want to write about. Nicholas suggests that they write about the magic fish. T writes on the board: "Oh magic fish". Someone suggests "Clean the dish". [After some brainstorming and discussion the final chant is: Give me my wish Oh magic fish]

T reads out loud another chant. Then she reads some riddles/jokes to the class. Then she reads some poetry.

Ss are told to proceed to the writing activity. T says she'd like the writing to be about the sea: "things about boats; things about fish; things about shells, etc. ".

In this episode, students are engaged in a producing simple rhyming poems. The crux of the type of text aimed for is dealt with explicitly by the teacher -- the presence in each poem or 'chant' of two rhyming words. Left implicit is the fact that these words are embedded within the structure of a particular type of text; namely, in *verse* consisting of a few lines (in doublets) making some kind of sense. This sense or meaning is more expressive or figurative than literal. The question here is whether the students have actually understood the type of text they are supposed to compose during the writing period. It is evident that some students have understood what was required since they collaborated with the teacher in producing the three examples mentioned above. However, it is easy for a student to avoid participation in whole-class discussions in which answers are mostly volunteered. In such cases, the point of a lesson can be easily lost, as revealed by the following conversation between one of the the field researchers and the target child for that day:

RO:Do you know what you're supposed to write here?

X: ..Huh? Me? (=Are you talking to me?)

RO:*__ Well. both of you. Do you know what to write?

X: {Yeah.}

S1: {Yeah.}

X: Rhymes in the sea.

RO:..Do you have to write a. a poem? ..Or you just write__ the words. that

rhyme?

X: The words that rhymes (=rhyme) in the sea.

RO:Do they have to make sense?

X: Oh yes.

RO:....I guess you have to write something like what [the teacher] did on the blackboard.

X: No. I don't think so.

RO:No?

X: No. You {<have to>}__

S1: {**} write it?

X: No. Y__ You do that. * <dry and blind>.

S1: 'Fish bish. fish bish.' [reads aloud what she wrote]

RO:They have to make sense -----.

S1: They do?

RO:Yeah.

She [teacher] didn't ask you to__ just write the words that rhymed. I think she wants you to write__ a poem or something.

It is clear from this short interview that these two particular students have not completely understood the point of the writing task. It is not clear to what degree they understand that what they write has to "make sense". For example, S1 has written down only two rhyming "words"; but one of the words is not really a word ("bish"). While the meaning of the entire poem may be nonsensical as in the original chant examples, each word has to be a real word. This important fact was not highlighted during the class exercise, and S1 is one student who obviously did not notice this important constraint about what she was supposed to compose. Also lost was the seemingly obvious writing goal that they had to compose complete poems consisting of at least word phrases. When the researcher asks the target child "X" whether he is supposed to write something like what the teacher wrote on the blackboard, he replies "No. I don't think so". This may be a case of simple inattention -- in the observational notes quoted above it is noted that this student spent much of his time chatting with other students while the teacher was writing at the blackboard. As a consequence, he assimilated the explicit part of the task to be done (think of rhyming words) but not the implicit goal of writing a rhyming poem.

It might appear on the surface that composing a short rhyming poem is a simple writing task. In fact it is not. Rather, multiple goals are involved: generate a topic, think of words which rhyme, embed these words in phrases each of which make sense but together may be nonsensical. In the example above, the topic was supplied by the teacher. The goal of generating rhyming words was made explicit and salient. The most difficult goal involving the structure of the poem itself was modelled during the collaborative discussion between teacher and the class, but the goal was never explicitly stated. As a result, this aspect of the task was not picked up by all the students.

Example 11:C

The following episode is taken from a discussion which the teacher initiates about the play Pinocchio that a group of children performed yesterday.

T: Come and sit down over here we will talk about it.. I have a little book that I wrote what- what happened and I was very happy about some of the things that [you had been using] pretty good things you had been using.

Uh um.. Okay!- do you remember. that you did some very interesting things that I've never seen before even last year. you- you used the microphone to announce each other Do you remember how- who thought of that?

S1: I did.

S2: I- he did it first

T: {You had a-}

S2: {and I did it at last}

T: You had a little microphone and you went from person to person you introduced them. didn't you do that?..

S1: [nods head]

T: Do you think that's a good idea?

S1: Yes

T: Do you want to do that the next time as well?

S1: yeah!

T: There is another way wha- what [kind] else can you introduce as well?

S3: Pass it to the end- pass it to one of-the- the per- the person (stutters)

T: You didn't tell us Tell us!

S3: like you-.. like you're all standing ** other than you and then the person *** until there some- until there are somebody have finished *** and the person **** (unintelligible because of low voice and background noise)

T: Yeah! like that. There are two ways. one person could be an announcer and announcing you [points to each of the kids in the group] announcing you or I can pass it on and you announce yourself. and you move to the next person and that person announces himself.. yeah!

Self-reflection is an extremely important part of literacy acquisition. From our observations we find few examples in which a teacher takes time out from the organizational or curricular needs of the classroom simply to reflect on the student's efforts and evaluate them in a way that does not involve assigning grades. In the example above, the teacher states his positive response to something the students did in their drama presentation the day before and leads them through a short brainstorming session attempting to think of another alternative. The teacher exhorts students to be clear and intelligible in their responses ("You didn't tell us. Tell us!). And at the end of the discussion he summarizes what was suggested in a final clear statement. These kinds of short reflective discussions help to reinforce important criteria in the students' minds. In the case described above, creativity and intelligibility are being highlighted and praised.

Example 12:C

Alex and three other boys are trying to make a robot by using some styrofoam boxes that are brought to school by the teacher this morning. T gives the boys the boxes and tells them to go away and think about what they can do with these boxes. The boys leave and later decide to make a robot out of it. The following transcript is excerpted from a small part of the episode during the time when the boys are making it.

X: All right put your head on

Bx: Now! transform the head!

X: Can I stick the head on?.. Ready?.. and throw our head!

[after the robot's head is put on, the boys all become excited.]

X: How do you like that robot? --------! How do you like that robot? Look! --------! A robot!

Bx: * a robot

X: But we need the arms! we need the arms! we need the arms!. we need the arms now.

Bx: Are you going to break it?

X: No way!

B2: No way

Bx: Oh! almost break

X: I know. we need more tapes on the looks we need more tapes on look

Ss: yeah! (several boys respond at the same time)

B1: I got some to tape here too

Bx: ** more tape too

[the boys then start taping]

[after the boys have been working for a while, the teacher comes to talk to them]

T: Okay you guys! How is it going?

Ss: Fine!

B1: Robot goes just perfect

X: See!

B1: It just perfect

T: Are you having any ideas?

X: Yeh it can even stand up (a few boys are trying to answer T's question at the same time) It can even stand up

B1: Yeah! it can stand up before we try it and it stand up.

X: That's arms

B1: now we can stick the arms...

T: (whistles) Excellent!

We have here an unusual example of an arts and crafts activity. In most cases arts and crafts is approached in the early grades by providing the students with a model of what is to be constructed and sometimes with a demonstration by the teacher of the procedure to be carried out. In this case, however, the students are simply given the materials and asked to figure out for themselves what to make. What makes this activity a "literacy event" even though a text is not involved, is the presence of a socially-shared and evolving *mental representation* guiding the whole enterprise. As the robot is being built, the shared concept of the robot becomes more detailed and complex. At each stage of the construction new problems emerge which are recognized by the students and solved. . Attaching the arms creates the problem of the added weight possibly causing the torso to break apart which is solved by reinforcing the torso with tape. In a later part of the episode the attachment of legs creates the problem about whether the robot will be able to stand

The success of this effort depends on the students being able to collaborate and coordinate their efforts. These particular students get along with each other, the result being a shared enthusiasm as well as pride in the group's accomplishment. Exhortations in the abstract about the importance of effective communication are not as effective as firsthand experience. Within a supportive and motivating context these students are learning directly about the productive results that effective communication can bring.

Examples From Grade Three Classrooms

Example 13:C

[This is the first day after March break holiday. The teacher gathers the children on the rug, telling them that if she lets each one of them take turn to tell about his/her March break, it would take 27 turns. Therefore, she has decided to ask them to choose their own partners to talk about it. T tells them how and what they should do.]

T: Could I have everybody's attention please?... [the class quiets down.] I think we have a lot to talk about.. yeah.. We really have a lot to talk about (speaks softly).. You know <and since> so many of us in the class if we took twenty seven turns... I think it will take us to next week to share all the things that happened I have an idea that might help us for sharing..

T: We get into parnters and we have a lot of partner changes. We have about two minutes. to share with our partner. some of the things that happened. Then we have a change. and get another partner and we share with that person. that way it's like getting a lot of telephone conversations in and sharing some of the things happened to us or we saw or did or thought about. learned about (voice becomes soft)

At the end of the session... After we have lovely time sharing then I'm going to ask you to be with a partner.. and to be like a newspaper report about what

happened with that person You'll be asked to write a little report about one person.

Quoted above are the instructions spoken by the teacher at the very beginning of a writing period. To complete the description of this activity we will summarize from the observational field notes: The students were asked to change partners seven times, each time with a new twist to deal with. For the second partner they had to pick "someone they seldom talked with". The third partner had to be someone "they had not talked to that morning". The fourth partner had to be someone from the other gender. The fifth partner could be anyone they had not been partnered with yet. For the sixth partner, they again could choose anyone they had not yet been partnered with yet, but this time they were supposed to recount not their owm experiences during the March break. but rather the experiences told to them by their previous conversational partner. For the seventh and final partner, they had to interview this person as if they were a reporter, take notes, and write up the interview in the form of a newspaper article with a headline. The teacher leads the class in a short discussion about the nature of a newspaper headline.

We have here a multi-layered literacy event in which the students confronted a number of challenges. The time constraint of two minutes forced them to recount their March break experiences in as concise a way as possible. Presumably, the large number of retellings gave them the opportunity to change what they had to say to discover and emphasize the main points. Because each retelling involved a new partner, each attempt would not be exactly the same so that boredom would not be a likely side effect of the procedure. In short, the partner exercise gave the students the opportunity to formulate and sharpen up an oral recounting of past experience. For the writing assignment itself they were asked to produce two other different texts; first, a record of another person's oral recounting in the form of short notes, and finally a complete written text in the genre of a newspaper article. Embedded in this multi-stage activity is an implicit comparison between three different types of textual representation (oral recount, notes, newpaper article) which share the common goal of being informative by stating in a concise manner the main points of an account. Wolf and Perry (1988) emphasize that higher-order literacy is best learned in an environment in which students are given the opportunity to experiment with different forms of representation or record-making so that implicit comparisons can be made between them. In this way they learn about the strengths and weaknesses of each form. The activity described above gives a good example of an effective pre-writing exercise which drew the students' attention to the main characteristic of notes as a concise record of, and newspaper articles as concise accounts of, actual experience.

Example 14:L

The work is on math, on bars.[bar graphs] The children have filled in bars with the hair colour in the class; the T goes to the board and exemplifies a graph with brown hair and black hair. Children start reporting on their research on hair. After -----, X gives his input: he got people with no hair, gray hair and "evelone". The T doesn't know what that is, so X explains it is blond, and gray and brown. The T asks to see his book: X put his results in a different way than the other children, but it is OK.

The T asks a few other children. She continues talking about the fact that the children were not clear what is brown and what is blond; X explodes with

the news that he meant "alburn" (I guess auburn) before, but he mixed up his letters. The T summarizes that the most common hair in the class is dark, with a little red.

The T switches to "eye colour" and asks S1 to report. Brown is the predominant color, along with hazel and green. Most have dark brown and least have green. The T goes on asking other children about their findings. She tries to elicit from the children not only the predominant colour but also other information.... One of the children apparently researched other people (and rabbits) rather than concentrate exclusively on the children from the class and this is discussed for a short while.

The T moves on to S2, who found out that more people have black eyes, and some have green, blue and hazel. S2 didn't do it right, using the 24 boxes prescribed for the 24 children in the class. S3 is asked next and she reports well. The T tries to make her summarize in one sentence her findings: the conclusion is that there are more dark eyed, dark haired people in this class.

The T tells the children to go back to their desks and make sure they have 24 boxes, also to write a few sentences about what they have discovered from their graphs: one paragraph for eyes and one for hair, a description for what they have discovered. She asks if there are any questions.

When students reach high school, being literate will involve not only reading and writing but also the ability to conduct research. In the example above students were given a sheet of paper with a grid of squares on which they were supposed to record each student's hair and eye color. By recording students with the same hair/eye color in the same column, and making sure each student's name took up one and only one square, thes students are in effect constructing bar graphs. From this record they could draw conclusions about relative frequency of particular hair or eye colors in the classroom. Finally they were asked to write down their conclusions in a summary statements.

While the data involved are quite simple, this task is effective in confronting the students with the typical problems involved in doing research. The first difficulty is with the data-collection stage in which they have to focus on relevant objects, persons or attributes; in this case hair and eye color. Some students obviously had problems with this stage of the process. Another problem presented by the data-collection stage is the definitional or categorization problem. That is, the data have to be organized into some sort of categorical scheme, and these categories have to be defined. For example, the teacher in this case does elaborate on the difficulty that some students had distinguishing between brown and blond hair. We also notive the target child for this observation struggling with the category of "auburn" hair. Finally, on the basis of the recorded data the students are asked to reach and state conclusions. This is probably one of the first experiences these students are having with academic-type expository language in which textual content is greatly resticted to the information directly relevant to the research question at hand. This is in contrast to the free play of imagination in most story writing.

Having the students report on their efforts creates a public forum in which the teacher's feedback can be supplemented by comparison to other student's work. So, for example, the student who did not record the data in the squares as intended has this pointed out to him by the teacher. The proper procedure need not be repeated to him, the example of the proper procedure is made available by the report of any student who did follow the procedure correctly. The sharing of work by students is a highly effective way of making

salient the performance criteria the teacher is trying to get across in a context which is socially motivating.

Example 15:E

> T and Ss on carpet for brainstorming- what is brain-storming. T asks S1. What happens? S2: "we're going to cooperate". S3: "we want to get ideas". T is going to ask some people to sit soon. T asks who has ideas for Indian City. "arrow, hats"..."costumes"..."spears". T writes. "drum"..."tomohawks"..."tent" but T wants Indian name teepee or wigwam. "Fire"..."totem poles"..."hunting". "music, dance and rain dance". T kneels by the easel board as she writes these down.
>
> T sits and says that some of these are the same type of thing and can be erased. Asks Ss what: drum for music, hats for costumes but T doesn't agree that music and dance are the same. S4 suggests weapons instead of 3 words- spears, etc. S5 jewelry but T doesn't write it because it comes under costumes. T asks where Ss keep horses- corral. T is going to put this in a piece of paper and will write the 8 categories (erases fire). Each S will sign for 2 out of 7 activities. Totem pole is #8 but it is to be done by all in groups. T asks Ss to take recorder home to practise Indian songs. Ss are to look into these themselves by going to the library, etc. Two students are sent to the library to get books on Indians, particularly totem poles.

This brainstorming session took place at the beginning of a whole class project in which students were organized into groups each of which eventually prepared some sort of presentation concerning Indian life in a typical Indian village. In addition, all the groups were involved in constructing their own totem pole out of construction paper.

The brainstorming session constitutes a planning stage in which the goal is to identify general topics around which to organize the specific group projects. There are two types of mental work involved here: content generation, and conceptual organization. It is clear from the field notes above that the responsibility for the two types of mental work are being split by the teacher and the students. Students were asked to generate "ideas" associated with Indians; and except for one instance, the teacher does the bulk of organizing these ideas on an easel board. Organizing ideas involves the ability to generalize from instances (e.g. spears to warfare), as well as being able to associate instances contextually (e.g. music and dance withing the context of the rain dance ritual).

The teacher's control over the organizational stage need not have been so complete. If the purpose is to model the process, doing a few examples of organizing the ideas into superordinate categories would have been adequate. The strudents at this grade level are certainly capable of the thinking involved. In fact, one contribution "music, dance and rain dance" is rejected by the teacher for the arbitrary reason that they "don't belong together". This is true in terms of strict conceptual generalization, but not in terms of contextual association as mentioned above. This is a clear case in which the teacher's agenda interferes with recognizing the validity of a student's answer.

Example 16:L

> At the beginning of this observation, the teacher read a poem to the class,

all sitting on the floor, and then proceeded to develop a discussion from the poem, based on the children's own experiences: eventually the discussion moved on to real life issues based on the ideas derived from the poem and the discussion. The teacher directed the discussion towards current issues and read to the children an article from the Toronto Star "War feared as Turkish, Greek forces on alert". The discussion following this reading became very relevant, considering that the school population is largely Greek.

T: I have a poem here that .I thought you might enjoy ..uh . See f- tell me if you ever found yourself in a situation like this . if you did .what did you do? .OK? It's called .'Maybe a fight'

[The teacher reads the poem.]

T: So what do you think of that? Were you in a situation like that where ...you were just itching to fight with .maybe your best friend? ..And maybe .afraid of * *? ...Anybody? ..No? .Never? ..-----?

[Some of the children tell about experiences with fights. The discussion moves on to jealousy, and the teacher tries to elicit from the children reactions to this as a cause for fights, in order to parallel the idea of the poem.]

T: Why is it jealousy?.

K: I don't know.....

T: Hum (=question)?

K: ...S- when somebody has something and .the other guy wants and he's. jealous and then he's got a fight

T: So you think jealousy's one of the { * } things that make you fight.

----------x----------

T: What- what other things might- what other emotions might start a fight as well? Jealousy could be one of them <May-> .anything else that might just start a fight? ..

A: Anger

T: Anger? ..Yeah

S: Something about a toy ..

T: I'm sorry?

K: * <tell> something about a toy

----------x----------

... the discussion moves on to current events -tied in with the "fight" topic, and the teacher brings up the issue of the Greek-Turkish conflict.

T: Well who can tell me a little bit about this? . because .they were fighting weren't they? ... Is this the same thing as the poem? isn't there some fighting going on here over something?

S: Yeah .there's gonna- [S1 has his hand up]

T: ------[S1]?

S1: Like .the - the Greeks wanted to go like .with a ship into a .I don't th- I

think a Greek .the Greek waters * or something (raising intonation)

T: Uhuh (=yes)

S1: and the Turkeys wouldn't let them and- but .the Turkeys wanted to take away their water .the Greek water and they started to fight because of that

T: ..So what do you think it was?

S1: Jealous

T: On whose part?

S1: Uh the Turkeys were jealous ..

T: So you're saying that the Turkish people .the Turks were- were .{jealous about-} about the Greeks

----------x-------- T: Does anybody else know anything about this? .. [addressing the class].....

S2: My mother told me that the Turkish are fighting to get the kids over there to be their slaves.

T: The Turkish are fighting... to get Greek children as slaves. That's what you're saying?

S2: Yeah That's what my mother told me ... I'm not sure it it's true.

T: ....What do you (slightly emphasized) think? What do you think the fight is about?

S2: About the oil * * * from the Greeks

T: And the oil .OK There is a Canadian firm there that is drilling for oil .and- and- .and water <is that>- that the Turks are saying 'Wait a second this isn't all yours Some of this is mine as well . It's ours'

So they're basically disputing territory .. All right? (softly)

We have here a good example of a challenging yet thoroughly engaging literacy event which in addition deals with a couple of themes that are quite meaningful for these children. The essential lesson is about the fruitfulness of drawing analogies between an account of some event, whether fictional or non-fictional, and one's own experience and prior knowledge. In this case, the student's experience with fighting is used to help interpret both a poem about fighting and newspaper accounts of an international dispute. Fighting is a topic of great relevance to children this age, and the topic of a dispute between the Greeks and Turks was contemporary and quite meaningful to the Greek population of Toronto to which many of the students in the class belonged.

Children do not automatically draw on previous experience or knowledge to interpret what they read. This is an effortful process over which a student has to develop self-directed control. The teacher in this case is careful to make this apparent. When one of the Greek students repeats a reason for the conflict between Greeks and Turks told to him by his mother, the teacher asks the student "What do *you* think?". The student is being encouraged to use what he knows to draw conclusions.

During the discussion, the students are also extracting and comparing information from different sources: their own experience (i.e. personal memory recall), a poem, and

newspaper articles. This requires a certain amount of information transformation and integration. For example, to make the analogy between what happens in the poem and what is happening between the two countries, it is necessary to think of the countries as agents having similar motives and reactions as friends who begin to fight. While a political scientist may protest the analogy, for these grade three students this is a creative and constructive form of reasoning.

Finally, we would like to point out that this is one of the most engaging and challenging discussions we have found in our data. The importance of this is that it occurs in a Grade Three classroom. As it happens, it is also the classroom with the highest proportion of time spent in constructive as opposed to reproductive thinking (see Table 67). While it is encouraging to see that students in the early grades are being given the opportunity to stretch their minds, it is discouraging to see that there does not seem to be an increase in these opportunities as the students progress into the higher grades.

Examples from Grade Four Classrooms

Example 17:E

X [target child] has been writing down answers to the reading exercises on p.30 of "Developing Comprehension in Reading". The T asks him how he's doing and he says he's stuck. T sits beside him.

T: All right Let's just have a look at some of the questions where you were (stuck) for now and then uh- you can read it over again afterwards if you think that would help uh- let's see ... Okay So the first two was words meanings All right? What's this?

X: 'Rain poured down in sheets'

T: Now do you go back and find where that was mentioned in the story and read it again? From the story?. Would you do that?. Well? Do you think that's a good idea?.

X: Yeah

T: Sure Any time you're looking for the meaning of whether it's a word or a phrase or a sentence Find out what was said before and what happened afterwards And that- will usually help

X: It's {in the-}

T: {Explain} the uh- the word

X: It's in the-

T: Or the phrase

X: Po- the front

T: Okay where do you think it was?

X: Oh yeah 'rain poured down in sheets' {(it says here)}

T: {Okay} read the next sentence What comes after that?

X: 'Suddenly a building flash of lightning lit up the country side'

T: Okay that's a BLINDING flash of lightning Well If the rain poured down in sheets how do you think it is raining?

X: Uhm- I don't know *

T: Well what are the possibilities? What-what- in what way does rain usually come down?

X: In drops

T: In drop All right In anything else?

X: Hail? It comes in hail

T: Uhm- (thinking) Except that probably it'd say if it was hail rather than rain..

It can come down softly {Like a drizzle}

X: {like a drizzle}

T: Or it can come down very very heavily What if- if it was coming down in sheets What do you think that means? From the rest?

X: It-it would come down. in square like? (unsure)

T: In what?

X: SQUARE Or uh-

T: Oh you're taking that-that word sheets uh-in a- literal way [chuckles]

'The rain poured down in sheets' How did it- how-how was it raining if it poured down in sheets?....

X: You know may-it would come down uhm-.. softly and..

T: Ok have a look at- let's look at the first sentence and see it this sounds like it's raining very softly {uhm-} start from this from the beginning

X: {One- uh-} 'One afternoon the train the twins were spreading straw for the the cattle in the barn when uh- a violent storm blew up'

It came-

T: Okay

X: 'hard'

T: 'A violent storm blew up' Does that sound like a soft rain storm? Or does it sound like a very heavy rainfall?

X: A heavy one

T: So if the next sentence says 'Thunder rolled across the black sky and rain poured down in sheets' [sounding theatrical] How was it raining?

X: uh- Heavily

T: That's right

The student above was working on a reading exercise when the teacher stopped by his desk to see how he was doing. Indicating that he was stuck on one question led to the conference transcribed above. The essence of the problem is that the student does not

understand the phrase "to rain in sheets". As the teacher correctly infers from his answer somewhere in the middle of the transcript ("it could come down in squares"), the student is taking the literal meaning of sheets as in "sheets of paper".

The teacher's effort is directed at having the student engage in strategies of inductive thinking to try to come up with a plausible meaning of the phrase. First of all, the teacher has the student go back and read the text immediately preceding and following the sentence under review. The strategy is then stated in capsule form by the teacher. Although the student agrees that "it was a good idea to do", it is obvious from the subsequent interchange that simply carrying out the reading strategy did not lead to the required insight to answer the question. The teacher then goes through a question-and-answer sequence which eventually leads the student to a correct resolution of the problem.

The procedure in which teacher and student share problem-solving activity is sometimes called "scaffolding" in the educational research literature. The idea is that through repeated sharings of joint action with the teacher, a student will assimilate the strategies used and will progressively take control of the problem-solving process. In the case above, the teacher does most of the work. The particular strategy involved here is to search the text to see whether there is any information which could be used to infer how intensely it was raining in the story. In effect, the strategy involves setting up a sort of semantic equation in which the not-completely-understood phrase is equated with a fact which is relevant and completed understood. The teacher sets this up for the student, equating "violent storm" with "heavy rainfall" and with "raining in sheets". The teacher, in the end, does all the work to lead the student to the correct answer. We can be sure that this reading strategy which utilizes constructive thinking has not been assimilated by the student. Part of the problem here may certainly be that the student just hasn't clued in; that is, has not had the appropriate insight, which may come at another time. However, another possible obstacle is that the strategy was identified in a rather oblique way and not in a clearly explicit way. Rather than pointing to the relevant passage in the text, having the student read the passage, and then hoping for the association to be made, the teacher could have initiated a discussion about how the same event may be described in a number of different ways in a text. Cross-referencing between these descriptions could give us the information one needs to infer meaning. Being as explicit as possible about the mental strategies being used seems to be a critical condition for successful scaffolding.

Example 18:C

> Later T gathers all the children to sit around her near the back at the big conference table. There are six jars which contain a plant and worms in compost. T tells the children that this morning when she walked into the room, it was really hot and she was really worried. She asks the children if they know why she was worried. ----- puts up his hand. T calls him. ----- explains that because the worms 'like it cool', so if the temperature gets hot, the worms get dried. T agrees that it is the reason she was worried about.
>
> T explains to the class the tasks that she wants them to do related to the worms. T asks them to draw pictures of the worms and write about them. T also says when they carry their container they should be careful. X, S1 and S2 stand together in the front row, listening to T attentively. T later also shows them the leaves. Before the children go, T tells them to be extremely careful with the containers.

This is an excellent example of a multifaceted activity and literacy event. It describes the begiining of one of many class sessions devoted to a science project in which all the students were involved. The stduents were asked to record and write about their experience of growing mealy worms in a jar. These efforts ranged from keeping a journal of observations and reflections about the growth process, drawing the worms, and writing stories about them.

The students are being given the opportunity to experience the same phenomenon from a variety of different perspectives, and through a variety of different products (journal notes, pictures, stories and descriptions). The scope and prolonged time-frame of this project also are giving these students the opportunity to experience what it means to become intimately familiar with some phenomenon -- in a sense, to become somewhat of an "expert" through long-term observation, reflection and writing.

When many people are involved in the same intensive project, there are instances when they may share the same concerns or see the same implications in a situation. An example of being on the same "wavelength" is described above when the teacher states that she was worried about the room being so hot and can anyone explain why. One student immediately sees the implications to the worms of a constantly hot environment, and that is that they may dry out. There is nothing arbitrary here about the teacher asking the students to guess what is on her mind; the teacher and students share the same concerns and knowledge about the classroom environment and what is currently on their minds. This is a clear example of shared ownership, and equal responsibility, between teacher and the students.

Example 19:C

The following episode is chosen to show the type of instruction the teacher gives in regard to writing conference.

T: Yesterday when we started off our. writing time. We were discussing with..[points to the blackboard] I don't know what to call this it's kind of like little chart or something to help us with writing. Now. I still have my rough copy with me (a child is coughing) .

"I haven't done too much. If I have time maybe I get some time this afternoon to work on my rough copy...and figure out...what the good copy is gonna look like. You're helping me figure it out. What an author can do. When they go to read the story.".

Do you remember some of the things you told me? It's kind of hard to ** right in here [points to the chart]

S1: Hardest thing is that makes sense

T: That's right. That's the big question isn't it? If it makes sense. Then some people have some other ideas and what you might ask your friends. Maybe not every time

T: The first suggestion is to make it better yeah! if we can help each other can we by talking in our conference. and then thinking again about our story.. Like you know what. if you go to a conference with the friend. who is in charge of that piece of writing?.

Do you have to do what your friend says?

Ss: No (simultaneously)

T: Well- how do you decide whether to do it or not?

Sx: (inaudible)

T: That's for sure that's really important for you to remember.

Today. writing workshop. there is a group of children who are interested in writing a letter... in about ten minutes I will call for that group to come and see me on the carpet We can talk about writing a letter if anyone is interested in working on the letters in writing today at a very full conference table.

This is an example of conferencing with the teacher from the same classroom in which the project with the worms took place. Again, we see that the teacher does not have great difficulty getting the students on her "wavelength", or train of thought. This is in sharp contrast to example 17 in which the student has trouble cluing in to what the teacher is getting at. Part of the reason for this is that thought processes are made quite explicit and public in this classroom. For example, in the episode above the teacher is in the process of initiating a public procedure for conferencing. A conferencing table is identified, and the reasons for conferencing are discussed by the whole class. In fact, the teacher had the students themselves state possible reasons for discussing their writing with another student and how this could help them. Their suggestions were recorded on a chart so that they could be referred to in the future. In this way, the way of doing things in this classroom is not perceived by the students as arbitraily imposed by the teacher, but as something they had a hand in establishing, and therefore something they have an investment in. As a result, the important aspect of literate thinking dealing with feedback about and revision of one's writing is given a powerful public form in this classroom which makes it all the more engaging for these students.

That this procedure was effective in getting students to conference with each other is shown by the following conference between two students a few days later:

S1 "the gerbils ran all over the house. They even ran faster than they are"

X: I don't get it [doesn't understand reading]

S1: The tail [of the gerbils]

X: You should just write- um- [X is thinking]. When she was running- she run too fast and the tail came off. Is it all right? Even the tail came off

S1: No

X: Even running (prolongs and seems to be thinking hard)

S1: "Over the house. Even run faster. but it came off"

X: Were you trying to say it run faster than that-

S1: His sister broke it "Because his sister was holding the gerbil's tail and run all over the house. They even run faster"

X: Don't take 'they even run-'

S1: {they even run fast}

X: 'Cause it doesn't make sense 'they even run fast'

One student is listening to another one read his writing and identifies something that

doesn't make sense. They both are having a hard time specifying what exactly is wrong with the text under question, but they don't stop trying to figure it out. The conferencing did not break down despite the difficulty they were having. With time they will improve in making their criticisms of each other's work more understandable. An important feature of this conference is that the writer does not feel bound to automatically take the other student's suggestion for a revision. The teacher has been careful in the past to establish that the writer does not have to respond to every criticism, and has complete control over their own writing including the revisions to be made. Emphasizing this control by the students makes the experience of listening to feedback about their work a little less threatening.

Examples from Grade Five Classrooms

Example 21:L

----- and ----- are standing in front of a display on the wall, which offers instructions for various activities. They examine the instructions for a shopping survey part of an Environmental Studies activity. S1 seems to be more knowledgeable in this matter and explains to X how to proceed.

X: You- you look at- you look- at these [points to the information on the display]

S1: {Yeah} (intonation rising, waiting for next information)

X: {You d-}.you pick one (emphasized) of these..

S1: Yeah (raising, as before)

X: You do-

S1: And-

X: -what it says in your environmental studies

S1: Oh .oh what is it coloring? .or what? { * }

X: {Whatever} it says

S1: OK and-

X: I don't know about this I don't know * (mumbling)

S1: ....'At least (=pronounced as "list") *- (=reading)

X: At l- (=trying to correct Bobby's reading)

S1: 'At least * two classmates find out what makes .some stores better places to shop than other' (monotonous voice) I don't get it!..

X: Well you- .you interview people like you go to som- .omeone and ask him questions and you write it down ..and (and then .you may-

S1: 'Choose a type of store that you .would like .to own' (reading)

X: And then And then draw . * Environmental Studies

X: 'Give three reasons why your store would be a good place to shop'

(reading)..

S1: Don't we do number three?

X: I- I know you - you- you make it like- like <an> architect You- you make the- the store what <use>- uh.. {you have-}

S1: {This could be-} Yeah but .what number three? 'Describe-'(=reading) Oh yeah yeah (=understanding) OK

X: 'Give three reasons why your- er- store would be a good place to shop. Make an advertisement .for your store'.. Advertisement means .like ..uh .like .commercials or .or put them in the paper that you- that you sell this at- at low low prices! (=last three words with raised, slightly theatrical intonation)

S1: ....OK I got it

In this episode, one student is helping another student interpret task instructions which are printed on a chart. Making instructions available in this way is very beneficial since they are given a public and permanent form, rather than expecting students to memorize them. This type of presentation also allows these instructions to be discussed by students as in the case above. This episode constitutes a literacy event because these students are constructing a shared understanding of the instructions. Instructions are short texts that have to be interpreted, their meaning is not always clear to all students. In the example above both students are effectively communicating. S1 is effective in identifying where his comprehension problems are, and X is effective in explaining to S1 what the instructions mean. This episode shows that students themselves are a potentially rich source of explanations because they share a common understanding of how to go about doing things.

Example 22:B

T passes out some bristol boards. Then he goes to the open area again. The grade-5's are left in the class. They chat with each other. T comes back to the class about one minute later. He passes out scissors then the weekend comic strips to everybody.

T explains to the grade-5's what they are going to do. They are going to do scrambled comics. He explains what he means. He shows them how to glue the comics so that they could save space for more comic strips. Each person will choose 2 to 3 comics that they like the best, then glue them on the bristol board. When it is dry, the comic strips will be cut out according to the arranged scenes and unscrambled.

[Sometime later T instructs the students to find a partner to exchange the scrambled comics with. The partner's job is to try and unscramble the comics by arranging the scenes in the right order.]

This is a good example of a not very successful literacy event. The task involved does involve thinking skills; specifically, the ability to infer narrative order in a series of drawings in order to reconstruct their order. However, this task would be more challenging and therefore more appropriate for younger students. The students spent the majority of time simply constructing the scrambled comics amidst much social chatting; from the beginning of the afternoon session until recess (over an hour). The actual key task of unscrambling the comic strips was given only 10 minutes to be done. It would

seem that this activity was being primarily used simply to occupy the students' time while the teacher did other things. In fact, the teacher spent a large amount of time outside the classroom presumably fulfilling various administrative duties.

Example 23:B

The teacher tells children to take out their magazines. They are going to discuss about the story that they were required to read in the silent reading periods.

T: o.k. would you take out your magazine please. and turn it to the story. ------ your magazine ** .... o.k. you got it? [T talks to ------. ..o.k. now. I think that's an <interesting> and good story. but it's a lot__ * there's not really a lot of action in the story may be. but you know. not all good stories <are>. there's {a lot of}__

S1: it's boring!

T: just a minute. don't * to say boring. it's boring to the entirely boring people <like> yourself

S1: ohhh!

T: I always wonder. whatever I hear the word of boring from somebody. you know I'm really__ <usually>__ real__ what I really mean is most of the time you <haven't> taken the time to. think about it. it's not everything is um. you know. is Star Wars or something like that. or. the Raiders of the Lost Ark it's a lot of actions sometimes. a lot of good stories or movies or books or plays. things you have to think about over. there's quite a bit in the story. I think there are some funny things in there. and some very interesting things to talk about. basic um. story that * you've all read. or you <certainly> should have read ------! turn around! I'm teaching a lesson here. I'm not conducting a class clown course here!

From the same classroom as the comic strip activity described in example 22:B we find the interchange between teacher and the class quoted above. This example reminds us that a lot more can be communicated in language than conceptual content. In contrast to the classrooms in which we find an atmosphere of quiet cooperation between teacher and students, we have here an atmosphere of defensiveness, confrontation and sarcasm. The conceptual content embedded in the talk has to do with the notion that most students like stories which have a lot of action in them, and find stories with little action boring. By referring to movies such as Star Wars the teacher is making indirect reference to a possible cause of this state of affairs being the emphasis in the popular media on action. However, these ideas get lost in the emotional content of the talk going on in this episode. The teacher is quite defensive, using an ad hominum argument in his first reaction to the accusation that the story being read is boring ("it's boring to the entirely boring people like you"). The students are being exposed to a poor model of persuasive communication as well as being alienated -- the emotional tone of this message is hardly an invitation to share a joint investigation with the teacher. Indeed, the teacher ends up simply lecturing the students in a self-righteous manner. The social and interpersonal context of a classroom is obviously an extremely important aspect of shared literate thinking.

Example 24:C

The following episode is taken from a story sharing period where the teacher reads some children's stories and asks for the group's opinions. The teacher first reads -----'s story, then -----'s, -----'s and -----'s.

T: Okay- I've read uh S1's <story> (noise from children pulling their chairs) and now we are going to read it and we're going to talk about how we would. change it Okay? So we just read first we read it through it first of all Okay?

T: and then we think of the things that you would like to ask her... and then think of things that you might like to change Okay...if you were editing.

[T read's S1's story which ends with...]

....."What do you think it is?" asked Nina. "I don't know" then they heard it again, click-clock, click-clock. then they went- when (self-correction) they went closer and they saw a mouse. with a nut stuck in his foot and he was trying to take it out..'

X: A nut? . (in soft voice)

T: You're going to have to ask her about it Don't ask me. It's her writing

X: A nut

S1: A nut

T: Okay- you want to know what kind of nut..

S2: It should be in a shell [a boy is talking to T]

X: Peanut?

S3: A squirrel-

T: Will you (be) willing to change to a uh- to a squirrel? Will you change to a squirrel

S1: No (softly) [shakes her head]

T: No

S1: <I want to be> a mouse

T: You want to be a mouse Okay Okay well- then they- they also have a problem with this nut... ----- [X] was concerned about What were you concerned about the nut [asks X]

X: How come the nut get stuck on the foot?..

S1: Because it' so small

T: Okay- how come the nut get stuck on the mouse's foot?

This episode describes a writing conference being mediated by the teacher and involving a small group of students. Picking up on a response by one of the students, concerning the nut being stuck in the mouse's foot, the teacher encourages a discussion about it. The teacher tries to direct as much of the discussion as possible between the writer and the audience, which in the long run will help them to take over the conference process themselves. When the teacher does intervene it is to help the students clarify what it is

they are trying to say. This points to an essential aspect of literate thinking in the classroom -- the process of giving expression to and elaborating one's intuitions into explicit, clear statements of opinion or criticism. In the example above, the students express the feeling that something is not quite right with having a nut stuck in a mouse's foot. The teacher tries to have them clarify what is wrong with this; some students want the type of nut specified, another student prefers a squirrel to a mouse, and the student who brought up the issue in the end states that the story doesn't make it clear how the nut came to be stuck on the mouse's foot. Student's reactions to what they read or observe are often intuitive and vague and they need opportunities to try to develop these reactions into clear verbal statements. This requires a context for discussion in which teachers must have great patience so as not to pre-empt the process themselves by formulating in their own words the students' reactions. The teacher above shows such patience in trying to elicit from the students clarification about what *they* mean. In this way, criteria for acceptible criticism are being developed amd made public in the classroom.

Examples from Grade Six Classrooms

Example 25:C

> T gets attention of S's, and announces that its time for two S's to give 2 minute talks to class. ----- tries but has to give up due to laryngitis. ----- gets up and speaks about a cancer treatment involving tropical plants. She refers to newspaper articles that she holds in her hand. X has been listening attentively. T asks for any questions. None are asked.

While we often find "show and tell" in the earlier grades, we find far fewer opportunities given to students in later grades for similar types of presentation about things that interest them. We have here an example of such a classroom routine instituted to take place at the beginning of class sessions. Any student can give a two-minute presentation on some topic of their own choosing. Such a presentation requires the student to organize their thoughts and materials and formulate a plan in order to state concisely what they have to say so that it fits within the time constraint. Also, they get the chance to express their ideas about something that they find interesting. This type of routine activity is both challenging and motivating as a literacy event, and as well takes up relatively little class time to do.

Example 26:E

> T writes letter format on board. It is part of the novel presentation task. She asks Ss how do you write it : Date and Dear --, . T asks ----- to put his book away because this is the mistake he made in his book report. T asks Ss how to continue letter. ----- volonteers "I like your book a lot, ----------[title]". T writes sentence but not "a lot". T asks how do you [indicate] the title of a book. S says quotes but T says that is for newspaper articles. For books, one underlines. T underlines title and continues writing the letter -- "but I would like to know more about you". T asks S1, who has been playing with a miniature pistol, what do you do before putting letter in the mail? Some Ss say put it in envelope; others proofread which is the right answer. T says last

step is missing -- "Sincerely", signature; but there is always same spelling mistake with that word. What is common mistake. S says "e" missing before "-ly".

The teacher, in this episode, is writing a correct example of the book report, in the form af a letter to the author of the book, that she had requested from the students. In this way she is giving feedback about the normative criteria that represent successful performance for this task. There is nothing wrong with pointing out common mistakes made in spelling or in the conventional format of a genre such as the letter. However, we are concerned about the unstated messages carried by the feedback above. Since no comment is made about the student's content in their letters the implicit message is that form and spelling are most important and content only marginally important. This is also evident by the teacher's treatment of the body of the letter in which she edits a student's contribution (i.e. leaves out "a lot") without explaining why, and completes the short letter on her own, presumably to save time.

The problem here is that the process of letter-writing is being only partially dealt with in this learning opportunity. Content *is* important in real life when writing letters. The teacher could have dealt with the act of letter-writing at a higher level of intention; for example, as an act of criticism or persuasion. Within this perspective, content and form can be given equal emphasis, by demonstrating that persuasiveness is lost by poor form, bad spelling or vague content. With the feedback given in this episode, the students are learning more about what the teacher values as correct performance in classroom writing rather than about the goal-directed, real-life act of writing effective letters.

Example 27:B

T announces that they are going to finish up the [activity] called To Tell The Truth this afternoon. Children were divided into ten different groups. The people in each group are to tell a detective-like story from different perspectives. Then they present them to the class, and the class will judge which group member is telling the truth.

----- and ----- say that they are not ready yet, and that they need the time to practice. T is reasoning with them. Apparently, Ss will not be given more time to practice because T says he has given them plenty of time to prepare for the presentation.

T checks with the class to see who is in what group. There are three groups who haven't done the presentation yet. T is clarifying with the class to see which groups haven't done the presentation yet.

----- 's group is asked to go to the front. They are now standing in front of the blackboard. T sits by his desk and is holding a pen. He seems to be taking notes. S1 starts telling a story about himself being invited to a dog's office. His cat drives him there and tells him what number he should press in the elevator. He gets off at the fifth floor. As soon as he walks out, he hears the firing of a machine gun and sees an Iranian [in the] small office. She tells S2 who will be talking next to speak up.

It's S2's turn to speak now. S2's version of the story is that he is invited to his aunt's office. The aunt tells him what floor she is in. He presses the number, but ends up getting off at the wrong floor. While he leaves the elevator, a police officer comes in. The officer says to him that it's a private

property, and he shows him a card that says Metropolitan Toronto Police. T corrects S2 and says it should be Metropolitan Toronto Police Officer. Then it's S3's turn. S3 says he is invited to his mother's office. She drives him there, and tells him to push number seven. He leaves the elevator but can't find her there. So he asks somebody at a desk to help him to locate her.

Because the story is about the lost people in the office, T says he will call them the real lost officers. T asks the class how many people think S1 is the real lost officer. Ten people put up their hands. Fourteen vote for S2. Four vote for S3. T asks the real lost officer to step forward. All three boys step forward, but S1 and S3 hold back after moving foward three steps.

The presentation is over. Some people are chattering. A student tells S2 why he got it right: "I saw you walking in with the book. . . You were reading it at your desk." S2 smiles and doesn't make any comments.

----------x----------

T evaluates the performance of all 10 groups. The evaluation is based on the closest [number] of votes that the groups get [concerning the identity of the original version]. The people in the three winning groups will get stickers as a reward.

This activity had great potential as a "literate event" requiring literate thinking. Students have to use their knowledge of the detective story genre as well as use their imagination in coming up with different versions of the same story. The listeners have to use the same knowledge to try to figure out "who is telling the truth".

The actual point of the game is not really clear. From the fact that the "winning" groups are identified as those which garnered the most votes for the original version, it seems that the storytellers' goal is to try to signal the fabricated versions from the original version. However, in the example above S1's story is more typical of a fantasy tale containing some rather implausible characters and events. S2's story is much more typical of a detective story and is, as it turns out, the original version. One would conclude from this that S1 had done a good job of signalling that her version was not the original one. And yet, S1's version get most of the class's votes, which indicates that many of the students may be voting actually for which story they liked the most.

The point of the game, including both the fabrication of different versions and the problem-solving to be done by the listeners, may have been established in the instructions communicated in a previous (and unfortunately unrecorded) class session. Even so, the teacher's feedback does not clarify for us what aspect of the students' knowledge of detective stories was being challenged other than being able to think up different versions of the same story. We might have inferred such if there had been some discussion with the class about the presentations; for example, by having the listeners justify their choices, or having the presenters explain what they did in fabricating their own version. None of this took place, however. The final evaluation by the teacher centers on the voting results and thus legitimizes these votes as indicators of relative success or failure on the task. We know, however, that in the example described above, the votes do not accurately represent the presenters' ability to signal the fabricated versions. While these students may have had fun doing this activity, they could not have been very clear about what the underlying purpose was. Nor could they have become aware of the criteria distinguishing good from poor performance. This outcome reminds us that even if a teacher is able to think up a motivating task and allow the students to take control over its completion, the transformation of that activity into a learning

opportunity requires the teacher's guidance in making goals and performance criteria explicit in some way.

Example 28:C

> T suggests the S's read the newsletter critically - to use their own experience in writing their newspaper. T discusses a contest that is referred to in the newsletter. She also points out an editorial cartoon which appears in it. She suggests that S's consider one for their own paper. T announces what she wants editors to do. Meanwhile, X does a bit of the crossword at the back of the newsletter. X puts down her pencil and looks at the teacher. X appears to be listening again, as the T continues to describe the editors' duties.
>
> S1 goes with other editors to a table in the computer room. They conference. They categorize the various pieces of newscopy written by reporters.
>
> Editors (including X) continue to discuss articles. A student comes to the table. S2 tries to get him to leave. The editors discuss their roles and responsibilities.
>
> X goes back to the classroom and conferences with the T about the roles and responsibilities.
>
> X returns to computer room with 1 other editor (S3) and they hold a staff meeting with a group of other S's. They negotiate the S's's roles and responsibilities. S3 seems to direct the meeting. X is recording the role assignments in a notebook. She talks to S3 about these assignments.
>
> T brings another student over to table. T announces that this student is joining the group. T discusses what would be interesting to write about. She asks the S's to think about the newsletter they read this morning, and also previous issues of their own newspaper. T gives suggestions for news stories. T speaks to editors about what would be an interesting thing to include. An S suggests the topic of how money is made. Another S suggests topic of counterfeit money.

This Grade Six class produces a newspaper once a month with different students being involved in the different roles. We have described here just one episode in the long-term and complex activity of putting together an edition of the newspaper. This episode is taking place at the beginning of the process at which time the teacher still has to take the dominant role and instruct the editors in their responsibilities.

This is an excellect example of the sustained and complex type of project students at this level are capable of. Over a relatively long time-frame students have to fulfill a variety of role-related responsibilities and carry out a number of different sub-tasks in order to be successful. Students have to become involved in a variety of higher-order thinking tasks: goal-setting, decision-making about content, planning about the presentation of the content, writing the articles or drawing the cartoons/pictures, and negotiating with other students about the carrying out of these tasks.

The teacher in this case provides structure without appropriating too much control. An example of another newsletter is provided as inspiration. As discussion is initiated at the end of the episode, directed by the teacher, during which topics for articles are discussed using the newsletter contents as example as well as referring to back issues of the class's own newsletter. This is a reverse of the roles often played by teacher and

students in some of the examples from earlier grades in which students were expected to provide the content and the teacher re-interpreted and organized this information. In the present case, the teacher is providing content examples and describing roles while the students are expected to go through the decision-making process to select and organize this content. The teacher is providing some structure to get things going but is not co-opting the core activity. As the activity continues we would expect this teacher to intervene in a facilitative way by identifying problems and discussing possible solutions when the students get stuck.

There are two additional aspects of this activity which make it a rich learning opportunity in literate thinking. The first concerns the deadline for completing the activity. Usually, deadlines are arbitrary in the sense that they correspond to the teacher's timetable for beginning and ending activities. In this case, however, the deadline is the publishing date for the edition in progress which is consensually set and shared by the whole group, and with subsequent issues also becomes part of the class/newpaper's tradition. The second aspect concerns the different roles played by the students which require effective interpersonal communication and effective strategies of negotiation and persuasion. Students have to deal with problems both at the substantive level (dealing with the form and content of the newspaper) and at the social level (dealing with role responsibilities and differences in opinion).

It has been found that the majority of classroom activities at the elementary school level involve individual seatwork (Sirotnick, 1983). By contrast, Resnick (1988) points out that the thinking that goes on "outside of school" -- that is, in the workplace -- usually involves group participation with shared responsibilities and differentiated roles and tasks. Thinking and learning outside the school is always embedded within some kind of *negotiated* social context. While it may be necessary in the earlier grades for the teacher to institute and maintain the social structure of the classroom, students in the later grades should be given some opportunity to participate in the thinking that goes on in negotiating and establishing a social context to carry out a complex task. We want to be clear that we are not suggesting that "cooperative learning" tasks should replace all individual-oriented activities. It is quite possible to have an unchallenging cooperative group task or a challenging, productive individual-oriented task. Rather, we are saying that some forms of complex task require a group effort (e.g. putting a newspaper together), and students in the later grades should get experience in these types of activity.

Summary

Classroom tasks and activities do not automatically produce learning. A large number of factors are involved which either facilitate or interfere with the process. We have tried to identify some of the conditions which make an activity into a learning opportunity for literate thinking; that is, into the kind of high-level constructive thinking necessary for a productive mental life. We can summarize our findings by identifying three general aspects which make an activity into a learning opportunity -- it must be intellectually challenging, it must engage the students' intentional system, and it must allow implicit goals, plans and criteria to be made explicit.

Intellectual Challenge. By intellectual challenge we mean that the student is required to do more than simply retrieve and display knowledge. The whole point of tasks which require "reproductive thinking" is for students to recall what they already know. Intellectual challenge occurs when they are required to select, organize and integrate

information for some reason. Complexity is also introduced by asking them to produce something that requires a lot of planning, coordination of a number of strategies, and revision according to a number of goals. It is, of course, unreasonable to expect students to constantly be dealing with highly complex tasks. These have to be worked up to by providing just enough structure so that the students are not overwhelmed. Intellectual challenge is never to be measured in absolute amounts but is conditional in relation to the students' readyness to deal with the complexity of the task.

Intentionality. Students have to gradually take control over the process of goal-directed thinking if they are to succeed in meeting the needs of post-elementary education. Unless students can actually participate in goal-setting, planning and decision-making, classroom activities will remain rather meaningless to them, and the danger exists that the knowledge they acquire will never be used in real-life situations. The transition from predominantly teacher-controlled activities to more student autonomy and control is a very tricky process. Activities may take longer to complete, and it sometimes happens that students may attempt to renegotiate tasks to make them *less* challenging (Doyle, 1983). More student control over an activity does not necessarily mean abdication by the teacher. More *guidance* from the teacher is required as more control is transferred to the students. As students gain more control over activities, effective communication between teacher and students becomes even more important.

Explicitness. In many of the examples we reviewed we found that the essential lesson embedded in the activity had been lost on students because some piece of information had not been made explicit. The student, in other words, had not gotten the point of what was being said or being done. They may not be clear about what specific information they need, or the appropriate strategy required, or the specific evaluative criteria they should be attending to. This, in itself, is not unusual. In real-life situations people often misunderstand each other. Misunderstandings are overcome if the participants can engage in a mutual inquiry of the issue at hand to pinpoint the reason for the misunderstanding. By participating with the teacher in mutual inquiry, students gradually become more adept at explicating their own methods as well as their own purposes. The result is that students and teachers begin to operate on the same "wavelength" as we saw in some of our examples.

What often prevents these three conditions from being met are very practical concerns on the teacher's part; namely, time-constraints for completing lessons and the need to attain pre-determined curricular objectives. In other words, the teacher has an *agenda* to follow. Teachers have to do a constant balancing act, weighing the imperatives of the agenda against the difficulties brought on by truly challenging the students. Learning opportunities are lost when emphasis is placed too much on one side or the other of the scale. Challenge without first cultivating a class environment that is organized and structured and in which everyone understands why things are done the way they are done (i.e. authority without being authoritarian) is bound to result in confusion. On the other hand, putting too much emphasis on the agenda results in a classroom environment that is insensitive to the students' own initiatives and responses and in which the reasons for doing things appear arbitrary (i.e. because the teacher wants it that way rather than for self-directed reasons).

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STUDENT EVALUATION IN RELATION TO LEARNING AND TEACHING

Gordon Wells

There is probably no educational activity that raises such strong feelings as evaluation. Few people like the idea of others passing judgment on their performance, still less on their inferred ability. Yet, without some form of stock-taking, there can be no basis for rational decisions about the effectivess of the education that is provided from the resources of one generation to equip those who will be the citizens, workers and leaders of the next. Evaluation is thus an essential part of the educational enterprise, which must be taken as seriously as the activities to which it is applied.

Nevertheless, it is important to start by making some distinctions between who or what is being evaluated and the purposes the evaluation is designed to serve. In the former category are matters as diverse as individual students or teachers, the standards of achievement at particular grade levels, or the effectiveness of particular curricular initiatives or organizational structures. Equally diverse are the purposes of evaluation, ranging from the obligation to be accountable for the way in which resources have been or are being deployed to the diagnosis of the strengths and weaknesses of individuals or of programmes so that learning opportunities may be optimally matched to the needs of those for whom they are intended. In the light of this diversity, it is clear that there can be no single approach to evaluation that is universally applicable. Each context for evaluation will need to be considered on its own terms.

During the course of our investigation, we have been concerned mainly with issues of evaluation within the classroom, and particularly with the formal evaluation of children's performance, on the basis of which judgments are made about their current ability, their potential, and their future placement. We have also attempted to look at the more informal procedures used by teachers for evaluating regular classroom activities in order to see how these were related to the procedures invoked at the end-of-year promotion meetings and to the practices involved in reporting to parents. It is to a discussion of issues arising from these aspects of evaluation that this section of the report will be addressed.

Evaluation: The Tension between Progress and Achievement

One issue of particular concern in the context of the evaluation of individual children is the common failure to distinguish between 'achievement' and 'progress'. Achievement is typically evaluated by comparing an individual's performance with some external standard, whether this be a predetermined criterion or the performance of other members of the appropriate reference group. Most frequently it is the latter that is used, with the class, district or national mean for the group being used as the point of comparison. Whilst this may be appropriate for the monitoring of standards across a school system, it is much less appropriate when a smaller unit, such as a grade level in a single school, is the subject of attention, as it fails to take account of the particular conditions that distinguish the context of learning in one school from that in another. And this is even more true in the case of an individual student, whose performance must be understood in terms of his or her unique circumstances.

There is a further issue that should be considered when evaluating individuals with respect to an age- or grade-related norm and that has to do with the fact that, when the

average score for the group is taken as the norm, approximately half the members of the group are bound to score below the average. As a statistical description, this statement is tautological; however, it becomes a problem when a below-average performance is equated with lack of success since, by definition, approximately 50% of the student population will fall into this category.

These are matters of particular concern in schools and classrooms that contain both monolingual and bilingual children, since the latter have to master not only the content of the curriculum, but also the language in which that content is represented and explained. Not surprisingly, therefore, particularly while they are still achieving proficiency in the language used in the classroom, their performance may well fall short of that of their monolingual peers. A below average performance does not necessarily mean, therefore, that the student is unsuccessful.

Even in the case of monolingual students, however, a below average performance should not, in itself, be taken as evidence of lack of ability. As is well-known from developmental research, development does not proceed in a linear fashion at an even pace: spurts and plateaux are to be expected. Furthermore, rate of development does not correlate in any simple fashion with the level ultimately attained. Some individuals reach a given level of development at a later age than others but they frequently catch up and in some cases eventually far surpass their early developing peers.

An alternative to evaluation in terms of norm-referenced achievement is the assessment of an individual's progress. Here the comparison is not with the performance of other students but with the same student's performance on some previous occasion. Has he or she made gains with respect to the knowledge, skills or attitudes under assessment? From this perspective, a successful student is one who is making progress at a rate equal to or greater than that of other members of the group, whatever his or her position in the rank order of the group. Quite apart from the better conformity of this conception of success to the pattern of individual differences in rate of development, it has the important advantage of allowing every individual to be seen as successful to the extent that he or she is improving on past performance. For the reasons just given, therefore, it was from the perspective of individuals' progress over time that we approached the issue of classroom evaluation.

Comparing the Progress Made by Different Ethnolinguistic Groups

In the original design of the Language and Learning Project, the intention was to assess the progress of the 72 children in the longitudinal study at six-monthly intervals in order to relate rate of progress to differences in classroom experience. However, for the reasons explained in Part One of this report, this goal had to be abandoned. We nevertheless decided to continue with the programme of assessments in order to meet some of the other objectives for which assessment data were needed. The measures used and the resulting data are presented in Part Two of this report.

A similar method was used for all assessments except the teacher rankings. First, a raw score was obtained for each individual on each occasion. Taking each age cohort separately, a mean score was then computed for each of the four classes (based on the six children at a particular grade level in each school) and, across schools, for each of the ethnolinguistic groups. Then, on the basis of these raw scores, a measure of progress was derived for each child by subtracting the score on the first occasion from that obtained on the final occasion of assessment. Mean scores were then computed for groups, as described above.

Before commenting on the results, it is necessary to point out their limitations, which

stem chiefly from the relatively small size of the sample studied. For the comparisons between ethnolinguistic groups, especially, the numbers in individual cells are in some cases extremely small and there is considerable individual variation, particularly in the case of the youngest cohort. What this means is that the finding of a lack of statistically significant difference between groups may be a false negative or, to put it less technically, it may be that, if the number of children in each group had been larger, a significant difference would have been found.

Nevertheless, with this proviso, the picture that emerges from the comparison between the four ethnolinguistic groups studied is an encouraging one. Although, as one would expect, the first language speakers of English score significantly higher on the Student Oral Language Observation Matrix (SOLOM) than the non-native speakers in the early years at school, this tendency, although still present, is no longer significant by Grades Five and Six. That is to say, by the last two years of elementary school, those students for whom English is a second language have achieved a command of the spoken language which is not significantly different from that of those for whom English is a first language.

It might still be the case, however, that their command of the more 'academic' uses of the language is less well-developed than that of their monolingual peers. Cummins (1984) suggests that it may take from four to six years for such students to reach an equivalent standard. To find out whether this is the case, we can examine the scores achieved in the assessments of reading, writing and math problems carried out at the beginning of grades One, Three and Five. In Grade One, no group had made sufficient progress in learning to read in English for any conclusions to be drawn; however, the Chinese and English-speaking groups scored higher than the Greek- and Portuguese-speaking on math problems. In Grade Three, there was a trend for the English-speakers to do better on the test of reading, but this only reached significance on the test of inferencing in reading comprehension. On the test of math problems, there was no significant difference between the four groups. By Grade Five, there were no significant differences on any of the tests of reading or math problems. This suggests that, at least by comparison with this sample of first-language speakers of English, the other goups had achieved a level of command of English that enabled them to participate in classroom learning activities on equal terms.[1]

This judgment is borne out by the data on the progress made in the same areas over the last two years of the project, which show that the average gain made by each of the four ethnolinguistic groups was more or less equivalent. In the results from the older two cohorts (Grades 3-4 and 5-6) there were no significant between-group differences, and in those from the youngest (Grades 1-2), although there was some evidence of difference, in only one area - that of inferencing in reading comprehension - did the difference reach significance. What is more interesting, however, is the underlying trend. Apart from the greater progress made by the native speakers of English in silent reading comprehension and inferencing in the early grades, the general pattern is, in general, the reverse. That is to say, as they gain greater command of the language of the classroom, the non-native speakers make slightly greater gains than the native speakers, with the result that, by the end of the elementary years, all four groups are, on average,

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[1]This note of caution is necessary because, as was explained in Part Two, the native-speaker group was not representative of the general population in a number of respects; in particular the group was unrepresentative in that about a quarter of them came from homes in which at least one other language was spoken regularly, but also in that a high proportion of them were middle class in terms of parents' education and occupation.

at the same level and making equivalent progress. To the extent that one can generalize from these results, therefore, it can be concluded that to be bilingual is not a handicap with respect to successful progress in the elementary years.

Evaluation in the Classroom - as Observed

The preceding discussion of the comparative achievement and progress of children from different ethnolinguistic backgrounds was based on data collected, for the most part, by members of the research team. Tests of the kind from which these data were derived were not used by any of the teachers with whom we worked. Nor, on the whole, did we observe them using any other form of formal testing. Instead, they based their evaluation of the children's achievement and progress on whatever form of cumulative records they kept and on impressions of individuals built up from their day-by-day encounters with them in the course of ongoing classroom activities.

These procedures varied very considerably from one teacher to another, both in the methods used and in the systematicity and detail of the records kept. Some teachers, for example, seemed to record only their evaluation of finished products, using a system of grades; others not only evaluated the products but also made time systematically to record brief notes based on discussions with individual students or small groups at various stages in the execution of their projects. In general, however, our impression was that, although most teachers avoided the harmful effects of narrow and mechanical evaluation, rather few teachers had developed techniques for building up systematic profiles of individual students based on process as well as products in all areas of the curriculum.

As well as being an integral part of the ongoing process of learning and teaching, evaluation should be a collaborative rather than a one-way process. In its report, Evaluation, Measurement and Reporting to Parents, the Toronto Board of Education (1978) stresses that the evaluation provided for students and parents should be based on the student's own understanding about his or her performance. This implies that the criteria for evaluation will be made explicit to students in the context of discussion of their work and, ideally, that the students will be involved in assessing how far they have succeeded in meeting them.

From this perspective, it is interesting to look at the following episode from a Grade Two class, in which the teacher not only briefly explains her grading system but also exemplifies the way she applies it as she comments in detail on individual students' projects as she hands them back. Both in the amount of sustained whole class time given to the evaluation of the children's work (15 minutes), and in the explicitness of the teacher's comments, this episode is unusual.

The episode takes place first thing in the morning while the children are gathered on the carpet. The teacher has read through the children's books, each of which contains similar components - a map, a story, pictures, and so on - on the topic of 'The Sea'. She comments on each book as she returns it.[2]

```
01 T: Well I went through some of the books last night .. Brian ...
      I just want to talk for a minute about .. titles ..OK?
      I had to put the title on here you forgot to put a title on your
        page
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[2]In this and the following transcripts, . = 1 second of pause; < > enclose segments where the transcription is uncertain; * = a word that was inaudible; underlining indicates segments that were spoken simultaneously.

[Children continue with individual jobs for several minutes]

02 T: OK now I said that I was going to give you a mark . so that you would have some idea of what kind of marks you would get .

03 P: * * * * *

04 T: (to P) Then you'll have to get one round the office OK?

05 T: (to class) OK I was talking about titles ... OK?
If `A' is perfect what mark would you give this one, A B or C?

06 P: (very softly) B

07 T: B?

08 Ps: (several speak at once)

09 T: Again, he didn't put the title I had to . But you should have a title . and your title should stand out . so I would have put it in colour .. cos the title is supposed to stand out .. OK?

10 T: (to B) Was this supposed to be a title?

11 B: <Yes>

12 T: Why did you put this here?

13 B: Cos that's the title

14 T: Well it's got a title here already `Magic Fish'
I like the drawing you did and I like the way you shaded it ...

15 T: This page .. it should have had a back- a coloured page behind it or you should have put a border around it ...

16 P: * *

17 T: I'm not sure about this picture I think this could have been better and this one . I would have put something here * * ....
I think I would have coloured him all one colour . OK?
Dictionary . and again I would have put coloured paper under here
I would have put something here ....

[A pause, during which students talk to each other quietly]

18 T: (to whole class) I'm looking at all the pages together and if everything is done on all the pages I would give it an A ..
<u>If it isn't</u> ..

19 P: <u>What if * *?</u>

20 T: (to P) No . A B or C .. OK? .....

21 T: (to B but speaking to whole class) Your drawings are quite nice

but with some of these you went too fast ...
The same with this one, remember, you just stuck a fish one each one and said I'm done
If you're going to do . do a thing just quickly and say I'm done what kind of mark are you going to get? Are you going to get A?

22 Ps: (in chorus) No

23 T: C

[Another teacher comes in to make an announcement. The discussion resumes several minutes later]

24 T: OK Brian, I gave you a B .. * * * * B because he had everything done .. but . you did things in a bit of a hurry . OK?

25 T: (picking up another child's work) Richard .. Now Richard's book ... he has the title . he has the oceans coloured in very nicely . but Pacific what?

26 R: Ocean

27 T: I'd like the word `ocean' here OK? so that people don't think it's the Pacific sea or the Pacific block or the Pacific . cookie

28 Ps: (laugh and there is some chatter)

29 T: And a capital `T' here right . a title should have a capital letter at the beginning OK? ..
Now then you got the oil pastel . and you shouldn't use oil pastel in a book . and you went a little . wild with your oil pastel ...
I don't understand this . What were you trying to do?

30 R: * * *

31 T: Pardon? . What were you trying to do? .. Were you going to . rub it and smudge it? ...
This was not a good idea . Chalk would have been better . This was not a great idea . because what's going to happen now . these lines are all going to end up over on this side of the page

32 P: It's already starting

33 T: It's already starting, right . The chalk is a better idea because it- you can rub it off and it blends better than this does ...
Here now, I like this what you did I thought that was a nice effect
You put a picture on this dictionary which was nice . OK?
Again, ‹with the› scribble ....
I liked this picture very much . you spent a long time on this
Your seaweed picture, you forgot the seaweed . Seaweeds look like plants ...
OK I said you had very good story but your work with the oil pastel was not too great

34 Ps: What did he get?

35 P1: B

36 P2: He got a B

37 T: Richard got a B . because his work was good he just made one mistake
What was it?

38 Ps: (in chorus) Oil pastel

[General buzz of conversation for some moments]

39 T: (reading comments) OK Myrna . I said `Good work Myrna. Please be more careful about your printing. Your stories and your pictures are quite good.'

40 P: What did she get?

41 T: OK?

42 P: She got a B

43 T: I know you could have printed the title better than that . You were in a hurry and you didn't do that great a job on the printing . OK? and I would have put a line under the title . That way you could get your printing a little <neater>

44 P: Capitals

45 T: Capitals, right
That one is better .. OK the pictures are good .
(to Richard) See - Is this what you were trying to do with your oil pastels? .. Like that? . No? . Yes
Yes I know, I said were you trying to make the water like this with your oil pastels?

46 R: Yes

47 T: (softly) Oh . This is chalk . you have to use the chalk for this

[several seconds of silence]

48 T: I guess most of you have not seen what seaweed looks like because your seaweed pictures are all a little -

49 Ps: [several speak at once]

50 T: Well one place you can see seaweed is in our fish tank ...
OK the guppies . I would have put a little colour on them ..
And then I have this blank here Myrna . What was going to go there?

51 M: A picture that I did in the cut and paste . * * -

52 T: Oh you put it here

53 M: - on the next page

54 T: Yes .. And it's - like I would have put something else behind the eye too I think to make it show out - stick out better . and maybe er something down here . OK? Otherwise you did a very nice job

55 PS: But what did she get?

56 T: What did she get? [consults her record book] Myrna got a B plus ..

57 P: That means a little higher

58 T: That means a little higher . right

59 P: Not a A

60 T: No I'm not giving A pluses .. A is the best you're going to get

[several children make indistinct comments on grades]

61 T: (picks up next book) OK what's missing here?

62 P: Title

63 T: Oh this is Elizabeth's . She's not here today there's no point in doing hers

64 P: What did she get?

65 T: When she's here we'll talk about her book OK? ...

[the episode continues in a similar fashion for several more minutes]

As already remarked, it is unusual to see so much time and attention being given to explaining the basis on which children's completed work is evaluated. By discussing the individual students' projects, the teacher exemplifies what she treats as important and she does so in a manner that is relevant to the whole class as well as to the individual whose work is being evaluated. And, as is evident from their frequent contributions to the conversation, the majority of students are learning from the comments that the teacher makes.

Thus, what this episode makes very salient is the strong connection between evaluation and learning. We do not, of course, know how the teacher arrived at the grades that she assigned. But what comes across from her comments is that, on this occasion at least, the criteria by which the work was evaluated were more concerned with the way in which it was presented than with its content. This, and the importance of grades, therefore, is what the children most probably learned from the details that were picked out for attention.

Matters of presentation - the inclusion of a title which 'stands out', the appropriate use of materials, writing neatly and not 'in a rush' - are, of course, important. But so is the content - the choice of what to include, its organization and expression. Although there are indeed several comments praising good pictures and stories, the teacher gives no indication of her criteria for making such judgments, as she did for the less satisfactory features of presentation, by quoting in detail from individual students' work.

This is a pervasive problem in almost all contexts of evaluation. There is a tendency to see individuals, programmes and systems in terms of their shortcomings instead of their achievements. However, it is just as important for the person or institution being evaluated to know where and how they are achieving success as to know where they are failing. Both areas are important for planning future action. To emphasize only areas of inadequacy or weakness not only fails to give the complete picture, it also undermines confidence and saps motivation. However, the habit of drawing attention predominantly to what is in need of improvement is so deeply engrained in most of us that we are not even aware that we are doing it. It is for this reason that Farmer and Dixon (1981), for example, recommend first reading a student's work to identify its achievements and, only when these have been recognized, taking note of the 'constraints' which limit its success. Graves's (1983) recommendation that, when discussing a student's writing, one should tell back what one has understood from it, is offered in a similar spirit.

The episode just discussed clearly meets the criterion that students should understand how their work is being evaluated. At one level, too, it also meets the criterion that they should be involved in the evaluation process. But the Board's guidelines add the word 'actively' with respect to this involvement, and that seems to imply that they should also be involved in the establishment of the criteria for evaluation. The following episode, taken from a unit of work in a Grade Six class, illustrates one way in which this can happen.

The class is working in teacher-selected groups. Each group has been reading a novel appropriate to the members' reading ability. After completing the reading, each group has been given the same general assignment: to make a presentation to the rest of the class which will give the other students an understanding of the novel. The original instruction was to use both written and oral modes. In practice, most groups have chosen to include: a dramatisation of a part of the story, a collage of pictures with accompanying explanatory text, and texts in various genres, such as newspaper reports of events in the novel, letters that might have been written by the characters, and so forth. In the presentation there is also to be an opportunity for the audience to ask questions and to discuss the novel with the presenting group.

In this episode, the teacher is discussing with the whole class the criteria by which they should evaluate whether their material is ready for presentation; they are also considering the strategies for applying the agreed-upon criteria.[3] The first criterion to be suggested is whether the various components of their presentations 'make sense'. A strategy for applying this criterion to their plays is suggested by one of the students.

01 P: To see if your play makes any sense to the stuff at the back
(referring to the blurb on the back of the book)

02 T: What's that?

03 P: To see if your play has- like- any communication * *

04 T: Uh-huh uh-huh If there's any connection between what's on the back
and what's in the play
When are you going to look for that? When are you going to see if
your audience makes that connection? .... Lyn?

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[3]This episode, and the group discussion which follows it, has also been analysed from the perspective of what is learned through collaborative talk and how that learning takes place (Chang and Wells, 1989; Wells and Chang, 1989). These papers are to be found in XXX.

05 L: When- when ******

06 T: OK so you're saying you're going to have some speakers ..... explaining (writes this on the board)
And when those speakers are explaining what's on the board (i.e. the group's bulletin board) you can find out if your audience understands the connection . is that what you're saying?
How will you find out if they understand the connection? .. Sadir?

07 S: Um- They'll start not making noise they'll stay quiet * * and they might not ask that many questions

08 T: So one can know how attentive they are - how interested they are in your presentation . Good . You're saying the other could be . if they DON'T ask any questions? . uh-huh

09 P: They could have some questions but um- it would have to do like sort of criticisms of them . not criticisms but how you could improve it . because if they ask `How- how- how is that play connected to that? It doesn't even match' -

10 T: Uh-huh

11 P: - that could be one of the questions

12 T: Yes . So what are you saying that the audience must be allowed to do somewhere in your presentation?

13 P: * * *

14 T: Right There has to be some place in there for audience participation, right? So you can get the feedback that you're looking for ...
I'll call that audience comment or questions (writes on board)
Then you can tell from what they're saying to you . but if you don't give them opportunity to say .. that's only a one-sided piece of communication except what you mentioned Sadir which is very good . and it's performers . performers get information from the audience by their - (solicits completion) .. by their attention or their lack of it
(aside to Wayne) So I'm wondering what kind of communication I'm making with Wayne here ..

15 T: If you're really effective the audience emotions go along with you . that's for proficient players you're right
All right . so . we have- in your programme we're going to have a name of a- a name of a novel, we're going to have your cast who they are in real life - who they are in acting . we're going to have . speakers explaining the work on the board . we're going to have audience time for comments for questions - feedback time
Is there anything else you need in your programme? keeping in mind you said the purpose of the programme is to prepare your audience for what's coming .. Sandra?

16 S: Maybe * * *

17 T: A- a brief summary somewhere in here about-

[There follows some discussion of the preparation of the written programme which each group is preparing]

18 T: Now if . in your group ... you don't like the order of this . change it It is your right to pre- prepare your programme whatever way you so desire . as long as it achieves your purpose . `What is the purpose of your programme?' that's what you have to keep in mind . Why are you doing the programme? ... Lyn?

19 L: So that they'll know what your book's about

20 T: And not just your book but . (soliciting responses)

21 P: You

22 T: You and what you are doing . and what all your work has been all about as well as your novel . Yes? (to P)

23 P: And . if you tell them like- how- how well you understand the * *

24 T: That's right . The end result of all this is that we can get some feedback from you - how well does that person <understand> what they've done

25 P: And how well- what's their reading level

26 T: Yes (surprised) way way back a long way back we got into your reading level . now we're getting into your performance level - how well can I take what I read . and do something with it? .. OK . Is there anything else we need to have in our programmes so that we are telling our audience what we're about? - preparing them mentally . for what they're going to see and hear? .. Lyn?

27 L: Well - why we do our * on our scene * * our novel

28 P: Why did we do it

29 T: Why you chose that scene? . Or why you did it?

30 P: Why you chose the scene

31 T: OK So you might in here when you're introducing the scene explain why that scene was chosen .. Again that is . optional to you So basically you've got four components . that you'll want in your programme . Now . leaving that alone let's come back over- we'll leave that for someone to work on or the group to work on today if they haven't- Let's find out what things we need to check on to be sure you're ready for presentation .. we've had six or seven people doing many many things .. What do we need to check on to see if you're ready - if you can say `All right my group's ready . let's go' . what are you going to check? . Danny?

32 D: How organized?

33 T: How- what things are we going to look at to see if they're organized? .
We are going to look at organization . Sadir?

34 S: Does it make sense? .

35 T: If what makes sense?

36 S: The play

37 T: All right . so first of all you're going to check the play ..

38 S: Then the written work

39 T: (Writing on board) - does it make sense? .....
What else are you going to check? . Andrew?

40 A: The written work

41 T: (Writing on board) .. Now what things are you going to check on the written work? . What questions will you ask about all the stuff we have on the board? . Lucia?

42 L: Is it done? Does it make sense? Can we- can it be better?

43 T: All right (writes on board) Is it done? ..... Can it be better? .....
Anything else? ..

44 A: <Other> questions?

45 T: All right so we're going to look at- . I'm just going to put down editing (writes) .. for spelling .
What else might you edit for? .

46 A: <Meaning?>

47 T: Uh-huh . What else?

48 S: Quotation and question marks?

49 T: What do we call those things?

50 Ps: <Punctuation marks>

51 T: Thank you (writes) ..
Right . Have we done all that kind of stuff? (writes) ..
Anything else we want to check for? ..... Phoung?

52 P: If the pictures also what's er- * -

53 T: (Writes)

54 J: What you have to say is * *

55 T: Yes I'm glad you mentioned this because I'd almost forgotten it but I went back Friday night and I was reading some of those things .. Make sure your text explains your picture . remember twenty-four of us have not read your text . so when I went back and took a look at one of the- the picture collages . and underneath it said `This is Judy Horton' . If I didn't know who Judy Horton was it tells me not much more than this is Santa Claus . If you tell a child who doesn't know anything about Christmas and Santa Claus that this is Santa Claus and they look at the picture with this funny jolly man with a beard and a red face they're going to go `Hey what a weird-looking guy!' .

[The discussion continues on this topic for a few turns]

56 T: But you see you haven't helped me as a reader . if you don't give me a little guidance and if I'm a skier I think skiing . so tell me a little bit about it . This is important (writes) Text and picture - what kind of information are you really giving . I think everybody needs to take a look at that to make sure you are telling us something significant not just putting a label on it like `This is a spoon' Huh? ..

Here, the concern with evaluation is of a very different order from that which was exemplified in the previous episode. Technically, it might be described in terms of formative rather than summative evaluation. But much more important is the purpose of the evaluation *for the students*. Instead of their work being judged, from outside, by an authority who simply informs them as to what criteria will be applied, here the students work, with the teacher's help, to construct the criteria by which to review what they have done so that they can revise their material *in advance* of the final presentation. Furthermore, the grounds on which these criteria are based are also abundantly clear: their purpose is to make their presentation interesting, informative and coherent for peers who have not read the novel that they have been studying.

The phrase that provides the key to the stance that the teacher wants everybody to adopt is 'feedback'. As she says in (24), 'the end result of all this is that we can get some feedback from you'. In the revision stage, the criteria are to be used to give feedback within the group to enable the group presentation to be made as effective as possible. Then, at the time of the final presentation, the questions and comments of the rest of the class will provide feedback to the group to enable them to judge how far they have succeeded in communicating their understanding to others.

This is very different from the assignment of a grade, which generally marks the conclusion of a unit of work and hence, in all probability, the termination of thought about the processes involved in bringing it to completion. The notion of feedback, on the other hand, is as much prospective as retrospective, in that its purpose is to use information about the relationship between goal and current state so that corrective self-regulatory action can be taken to enable the goal to be reached in the future.

In discussing the previous episode, attention was drawn to the close relationship between evaluation and teaching: as a result of the differential emphasis that the teacher gave to different aspects of the students' work, an indirect and perhaps unintentional message was conveyed to the students as to what the teacher *really* thought was important. Here, the message is direct and intentional. Evaluation is not only a process to which one's work - and hence oneself - is subjected; it is also an activity which one performs, agentively, as an essential part of any goal-oriented constructive

endeavour in which one engages. This is what the teacher wants her students to learn and, in this and the episodes which follow, she helps them to identify the criteria to be used in the light of their purposes and then works with them to develop strategies for applying those criteria (cf. Chang and Wells, 1989).

Some Contexts for Informal Evaluation

In the two episodes so far discussed, evaluation was, in different ways, the deliberate focus of the teacher's interaction with the class. But, to be effective, evaluation does not need to be the main purpose of the teacher's interaction; it can equally occur informally in the course of conversation about other aspects of work in progress. Indeed, in an earlier report, we suggested that this sort of ongoing informal, but systematic, evaluation is essential as a basis both for making judgments about the provision of appropriate future learning activities for individual students and also for talking in a substantive way to parents and others about those students' progress.

Occasions of this kind abound, particularly in classrooms that are organized around individual and group activities. The following were selected to illustrate the variety of contexts in which they might occur. The first was observed in a Grade Four classroom. Following the opening exercises, there was a time for oral reports by individual students.

01 T: All right . would you give ... your attention please

[S is standing at the front of the classroom. He holds up some feathers

02 S: These are tail feathers from a grouse . a wood grouse
It's sort of like a peacock feather ... They're related to peacocks
They fan out to attract their mates
My Dad went hunting yesterday . He plucked it .
I saw where the eggs come out ... here . from the back
It's as big as a duck . very aggressive
It eats bugs insects and grass

03 T: How did you find out that information?

04 S: I got it from a book . My Dad has lots of hunting books ..
It has webbed feet but they never use them for swimming

05 T: Why not?

06 S: I don't know . they go through marshes in the summer
My Dad's going hunting . I'll ask him
This is a wing feather . there are about five on each wing
The way it spreads out, the fan keeps it flying . The way birds fly,
the feathers are specially made to keep them up . made out of bone

07 T: Are there different markings?

08 S: All different markings on every feather
The males are more colourful . the females are on the nest for a
couple of weeks . the male stays around and guards . the way it
otects, it fans out, jumps up and down ...
Yes the fox is an enemy

Marion Blake, from whose field notes this episode is taken, comments as follows: 'Such reports are a regular feature of this classroom. They provide an opportunity for the

teacher to observe the children's progress in organizing and presenting an oral report. From this observation, the teacher is able to recognize that the child can combine information from personal observations, conversations and print sources to come to an understanding of a topic which is of interest. The teacher also has evidence that this child is able to speak in a composed and confident manner to the whole class and to respond to questions in a thoughtful and clear fashion.

The teacher can use the substance of this report to suggest further more formal work (including drawing, reading and writing) on topics which the child has begun to tentatively explore: bird flight, protective colouring, marsh and woodland birds.'

The next example comes from a writing period in a Grade Three classroom. The teacher is conferencing with a child on a piece of writing that he has finished drafting.

01 T: Read it

02 C: `Then the lightning hit the tree'

03 T: Your voice stopped

[C adds a period at the end of the sentence]

04 T: Great

05 C: And this (capitalizing the first letter of the next sentence)

06 T: You got it right! It's interesting isn't it when there's a mystery like that? You can't figure what that means . When you read it out loud you can often figure it out

About this episode, Blake writes: 'The teacher has given the child the opportunity to apply what he knows, but didn't know he knew. The teacher is demonstrating a strategy - "When you read it out loud, you can often figure it out" - while at the same time noting that the child has correctly applied a knowledge of periods and capitalization. The teacher now has an explicit framework to support planning and subsequent observation.'

The final episode illustrates a teacher capitalizing on a casual encounter in a Grade Three class. The children are busy with various kinds of work. A boy discovers a spider on the wall of one of the cabinets; he calls three friends over to show them and they embark on a noisy and lively conversation. The teacher joins them.

01 T: I wonder which kind it is

02 P: It was in a ball . I didn't even know what it was . and then it went ziiip so I put my hand forward a little bit and it turned into a ball again

03 T: I wonder why it does that?

04 P: To protect itself from enemies

05 T: That worked didn't it?

About this episode, Blake comments: 'This is the teacher's consistent pattern of work: to ask a question that extends the learning; to build the children's confidence in themselves as learners; to increase the teacher's knowledge of the children as learners.'

There are thus many opportunities to make evaluations of individual students' activities, achievements and progress in the course of normal classroom routines. And certainly most teachers take such opportunities to contribute to their students' learning in the situation. But how often are such opportunities used in a systematic manner to build up a cumulative record of those students' progress?

Two strategies can be suggested to facilitate such record keeping. The first is to select a time each day when an observation will be made of one or two students, on a rotating basis. A pro-forma of some kind can be used to structure the observation and, at appropriate points, the teacher can ask the student to explain what she or he is doing, what her or his purpose is and what strategies she or he is employing. Scardamalia and Bereiter (in press) refer to such exploratory questioning as 'coinvestigation' and note that, not only does it give the observer greater insight into the student's behaviour and the thinking that underlies it, but it also gives the student greater access to her or his own mental processes, allowing her or him to adopt a more intentional stance with respect to her or his own learning. If such conversations are tape recorded and subsequently transcribed, in whole or in part, they can add considerably to the detail of the observational notes and may be a useful basis for a later conversation with the student about the progress that she or he is making.

The second strategy, which is less structured and therefore more difficult to apply systematically, involves carrying a clip-board or spirally bound notepad at all times and jotting comments on a separate page at the end of each encounter. At the end of the day, these can be dated and sorted and each page dropped into the appropriate student's record folder. The folders are then updated on a regular basis, using the information from the separate jottings. As with the previous suggested strategy, the use of coinvestigation techniques and the recording of the resulting conversations can considerably enhance the value of this observational strategy for both teacher and students. To standardize the form of the resulting cumulative record, schools might consider adopting a version of the record-keeping system created by the Centre for Language in Primary Education of the Inner London Education Authority (Barrs, 1988), which is described in more detail in the previous section of the report.

Whatever the method used, some form of systematic participant observation is crucial if teachers are to fulfill their dual responsibility for evaluation. For it is only on the basis of the information so obtained that they can, first, ensure that they are providing learning opportunities that are responsive to individual students' specific needs and interests and, secondly, give an informed report to parents and others who have a right to expect it on how those students are progressing.

Promotion and Other Assessment Conferences

Whilst it is desirable that a cumulative record of the kind just described should be kept of every student's achievements and progress, it is particularly important in the case of students who are experiencing particular difficulties or generally making unsatisfactory progress. Even if it is finally decided to call for an external specialist assessment, the information gathered in the folder could be very helpful in complementing the results of a clinical test-based assessment and would almost certainly lead to a sounder decision on the most appropriate action to be taken.

However, far from a special effort being made in the home classroom to document such students' achievements and the factors that appear to be constraining their progress, once a student has been recognized to be having difficulties, there is a tendency on the part of some teachers to expect somebody else to take over the responsibility for providing the necessary help. Yet, in a substantial proportion of cases, what the student

needs is learning experiences that are more appropriately matched to her or his needs within the regular classroom rather than withdrawal or removal to another setting. However, for such experiences to be provided, there must be careful diagnosis, and nobody is better placed to make this than the student's classroom teacher, provided she or he is in the habit of carrying out regular observations as part of their responsibility for evaluation.

Certainly, as is apparent from two of the case studies presented earlier in this report, the difficulties some students experience in school are exacerbated by the fact that such diagnostic information is rarely available. As a result, at the end of the year, when decisions have to be made about promotion - unless there has been sufficient cause for concern for a case conference to have been called at an earlier point - there is little more that can be said than that the student in question is performing below grade level in one or more important areas of the curriculum and needs to catch up with his or her peers. In these circumstances, it is not surprising that the most satisfactory option seems to be that of repeating a grade, in the expectation or hope that the maturity that comes with time will somehow lead to the disappearance of the difficulties. Such was the experience of several children in the sample that we were observing.

Nevertheless, there is substantial evidence - confirmed yet again in the present study - against the effectiveness of such a policy in the vast majority of cases. First, it is unlikely that a repetition of the experiences that failed to enable the student to progress at an acceptable rate will be more successful a second time round. Indeed, it is more probable that, in the absence of an appropriate challenge, the opposite result would occur. Secondly, there is the danger that the repeating student will be ill-matched, both socially and in terms of his or her interests, with students a year younger. But perhaps most important is the damage to the student's self-concept that is inflicted by the stigma that inevitably attaches to having failed the grade.

From the case studies reported above and from the observations of other similar children that have not been presented in detail, it is our conclusion that the practice of having children repeat a grade is rarely overcomes the problems posed by their unsatisfactory progress. However, for this practice to be abandoned, changes will be needed on the part of many teachers and administrators in their understanding of the integral role that systematic continuous evaluation plays in the organization of effective learning and teaching, and of the many constructive but unobtrusive forms such evaluation can take.

In the preceding pages, by presenting examples from our observations of current practices in the four project schools, we have tried to show some of the opportunities that already exist to establish an organic relationship between evaluation and teaching. In some cases, the teachers were deliberately creating and exploiting these opportunities. In others, the opportunities were there, but they were unrecognized and therefore went unexploited. By drawing attention to the value of systematically observing students in the course of their engagement in regular classroom activities, we hope to persuade those educators who are as yet unconvinced that such methods provide a more effective way of discovering how best to help individual students than the administration of decontextualized standardized tests.

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THE DEVELOPMENT OF WRITING: WAYS OF KNOWING AND LEARNING

A Report of The Writing Study Prepared by Gen Ling M. Chang

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THE DEVELOPMENT OF WRITING: WAYS OF KNOWING AND LEARNING

Introduction

This study is about writing. But it is about writing seen as more than just process and product. It is about children acquiring and using writing as a cultural tool and technology for classroom purposes and beyond. It is also about the many ways children use writing as a procedure for meaning-making - for figuring out ideas, experiences, and emotions. In brief, the primary focus in this study is on understanding what children in the formative years of their elementary education know and can learn from writing, as they move back and forth, as well as negotiate, between the solitary autonomous operations of writing by themselves and the co-construction influences of interactions with teachers and peers. It is also a study of children's dialectical movement between oral and written language structures and processes. It is for these very reasons, therefore, that this writing study provides an opportunity for looking at writing, not in isolation, but in its connectedness - socially, linguistically and cognitively - with reading, talking, listening, perceiving, feeling, observing, and re-searching.

There is yet another facet to the writing study, for it provides an opportunity to understand the relationship between research and writing. Collaborative and joint activities of teachers who are engaged with children and researchers in inquiry offer rewarding occasions for understanding how writing features in research and how research features in writing. The teachers of the school where I carried out this study, their principal, and my researcher colleagues and I pool our knowledge and exchange expertise on children and learning as a community of inquirers and writers in search of answers and questions. As a consequence, this investigation is as much a study of collaborative research as it is a study of writing.

Given the multi-faceted nature of this study, it is not possible to do justice to all aspects of it in one brief report. Moreover, analysis and interpretation of certain categories of data are still continuing and to attempt to report on these would be premature. Accordingly, the present report will focus on those two facets of the study which have the widest applicability, that is to say those that involve data from all the children in the longitudinal study. The first of these concerns the patterns observed in children's development as writers, based on an analysis of a regular sampling of the texts they produced in the course of their everyday classroom activities. The second concerns these same activities, seen as the context in which development occurs. The data for analysis here are the records of the regular classroom observations, where the periods being observed were devoted to writing. However, before describing these investigations and reporting the findings from them, a brief account will be given of the origins and design of the study as a whole.

1.0 THE LONGITUDINAL PERSPECTIVE OF THE WRITING STUDY

1.1 Contextualising the Writing Study

In 1986 the writing study was added as one of three major objectives which the

Language and Learning Research Project would undertake to investigate. By then, the research project was beginning its second year and therefore several structures - overt and covert - were already in place. The overt structures were the research team; the participating schools, teachers, and children; and the available technical and material resources. The covert were the various participants' expectations and representations of the research project, and their rights, roles, and responsibilities as different members of the research team which had been established so far. Altogether they played a substantial influencing factor in shaping the conceptualization of the writing study and the directions it took.

Throughout the duration of the study, a major category of constraints confronting the principal investigator and myself was the availibilty of resources - financial, human, and technical. Although the writing study involves (1) a study of written texts produced by 72 children in four schools over a period of three years, (2) a two-year ethnographic study of 18 of the 72 children in one school, and (3) collaborative research with teachers and their principal about their school concerns, my appointment as a senior researcher was a 50% appointment. After nine months with the resignations of the project coordinator and one of the principal investigators, the budget was reorganised for the appointment of one senior researcher at 100%, and two at 75%. Thus, my appointment was changed from 50% to 75% up until the last four months of the project's extension period. It was then upgraded to a 100% appointment.

By way of contrast with the writing study, the longitudinal study of 72 children and the collaborative research enterprise began with the resources of three principal investigators, four field researchers, a senior researcher as project co-ordinator, a systems analyst, an administrative assistant and four graduate assistants. They each had different but complementary responsibilities for supporting the study of 72 children and collaborative research with teachers. Moreover, the co-ordinator's, systems analyst's and the administrative assistant's job descriptions were established a year before the writing study began, and this set-up did not provide for dealing with any work which would be related to writing. Technical resources such as different types of equipment and computer services that facilitated the storage, retrieval, analysis, and manipulation of data were made available to the longitudinal study, whilst the writing study was confronted with very limited technical resources and no computer support. Indeed, these constraints could not be easily addressed since they involved money and people.

From the very beginning of this study, there has also been a constant struggle to conceptualise a framework which will allow the various types of data that are generated by the two strands of the design of the study to be understood coherently, and in relation to each other. Developing quantitative and qualitative instruments and methods of analysis competed for my time and energy. This undoubtedly constituted the most complex and important challenge for me and one which admittedly I am still struggling to address even as I work on this report which by no means is a full account of all the data available for analysis. However, it is the very act of identifying the constraints and solving them or endeavouring to understand them which has enriched my knowledge about doing research - from the most trivial matter to the most important - and about the issues which this study sets itself to address. Unlike the latter kind of knowledge, the former cannot be shaped into a report although it is a very significant outcome of this project - the professional development of researchers.

1.2 Establishing the Writing Study

The consideration of including a study of writing arose initially from the recognition of the educational significance of understanding children's writing development in everyday

Canadian classroom experiences. This recognition was in part due to having writing as one of the focusses which the field researchers adopted in their observations of the project children's language and learning in the first year, and also a one-year study on writing in one of the four schools by a graduate student. The one-year study was carried out as her thesis work in response to a general invitation by the principal investigators to graduate students to consider conducting their thesis work with the project. Different students accepted the invitation differently, ranging from pilot-testing seminal thesis ideas or instruments to conceptualising and conducting a thesis research. In fact, the one-year study by the graduate student provided both pertinent pilot-study data and feedback to the research project especially on the conceptual and methodological aspects of observing and understanding classrooms, and children's literacy development through writing and its connections to reading and talking.

A third reason for extending the project to include a study of children's writing development was that one of the three principal investigators who was responsible for designing the assessment instruments to chart the longitudinal progress of the 72 project children resigned. As a consequence, the assessment of reading, writing, mathematics, and the children's first language, which were his special interests, had to be re-organised. Since there was no one who could take over all his functions, the coordination and conduct of assessment were distributed. The reading and mathematics assessments became the responsibilities of a part-time senior researcher whose specialization was in these two domains, whilst the first language assessment became part of the field researchers' responsibilities, since they had the necessary bilingual skills. The writing assessment was to be part of the consideration of initiating a study on writing development in the schools.

A fourth critical reason was that "writing has emerged in our preliminary discussions with the teachers in the project (particularly, in one of the four schools) as one area about which they have concern and about which they would be interested in becoming more knowledgeable. It is therefore a promising area in which to explore possibilities for collaboration." (The Research Project Proposal submitted at the end of the first year for continuation of funding through the O.I.S.E. Tranfer Grant. 1985-86).

1.3 The Writing Study and Its Theoretical Orientation

All four contributory events led to the incorporation of a writing study, articulated in the aforementioned document by the principal investigators as follows:

> The development of writing is also an area that is particularly appropriate as a focus with respect to the other objectives of the project. The following are some of the reasons:
>
> - Because the activities in which children engage when writing can be observed in considerable detail and because the products of their writing can be submitted to systematic analysis, a study of writing provides a particularly good opportunity to study the factors involved in language development. Furthermore, because the products of writing can be examined by child and researcher together (through coinvestigation as it has been called by Scardamalia and Bereiter, in press), it is also possible to gain information about the child's own awareness and understanding of the processes in which he or she engages when writing, in a way that is not feasible for spoken language.

- Although writing is sometimes treated as a relatively self-contained subject in the curriculum, it is important to recognise that, like all the language 'skills', it is more a means for reflecting on and communicating about other substantive areas of curriculum content than an end in itself (Moffett 1968). Furthermore, it is also coming to be recognised that, as well as the written product providing evidence of how well a student has understood a particular topic (thus yielding a basis on which his or her achievement can be evaluated), the actual processes that the student engages in while writing constitute a major means whereby he or she comes to understand the topic.

- When seen as a means not an end, writing can also serve as an integrating focus for work in the substantive areas of the curriculum. In order to write, one needs to consult sources, reading and discussing them with peers and teacher. Reading, speaking, and listening also continue to be involved at every stage in the production of the written text, from initial planning through to the final presentation of the finished communication. A 'writing-led' curriculum thus emphasizes both the interrelatedness of the content of the various language 'skills' and their functional role in developing understanding of the content of the various subjects of the curriculum (Clay 1983).

- From this perspective, it follows that one of the most effective ways in which teachers can facilitate the development of students' understanding is through 'conferencing' with individuals or small groups (Graves 1982) at various stages in the performance of the writing task. From the child's point of view, what is potentially so valuable about such conferencing is that, in trying to explain what he or she wrote or is writing and how and why, decisions that he or she may have made implicitly and unconsciously can become more conscious and deliberate. Conferencing thus provide a context in which the child can gain greater control over his or her own learning by being encouraged to formulate alternatives and evaluate their effectiveness in terms of the goals set for the writing. How teachers conceive of and practice conferencing is therefore a major determinant of student's classroom experiences as these affect their educational achievement.

- In addition, for children learning through English as a second language, writing and the conferences with the teacher to which it gives rise provide probably the richest opportunity to extend their control of the language itself, particularly the more 'academic' language which is necessary for success in school. By focussing on writing and conferencing in the context of writing, we shall be able to see how the teachers try to facilitate the second language learner's linguistic development.

A focus on writing across the curriculum and on conferencing that accompanies it thus allows us to study a very important way in which children's linguistic resources interact with their classroom experiences to determine their school achievement. In addition, research on writing is particularly suited to the sort of collaboration that this project is attempting, because the observational techniques that are developed to study children

> learning to write in the classroom can also be used by teachers who wish to adopt a more research-oriented stance to their teaching in order to have an informed basis on which to modify their pedagogical practices. A further advantage of this particular focus is that, by attending to their manner of conferencing, teachers are likely to move towards a more collaborative relationship with their students - a change which it is one of the aims of this project to promote.

Implicit in the above statements, there were two major themes: children's writing and literacy, and teachers' research as a form of teachers' learning about children's learning Together, they represented the research issues which I undertook to study: what form they actually take in a particular Canadian school and why they are the way they are.

1.4 The Design of the Writing Study

The first strand is a systematic and cumulative collection of writings produced by all the 72 children involved in the project. One purpose is to provide data which will allow comparison between children across the four schools with respect to progress made in writing over the two years, and which will also yield cross-sectional and longitudinal group patterns of children's writing development and the relationship between these and children's classroom language and learning. Another primary purpose is that the study of children's texts in the four research schools will enable us to obtain a rich portrait of children's progress in their composition of meaning and their facilty with text production from Grade One to Grade Six.

The second strand is an ethnographic study of 18 children in one research school. It is beyond our resources to obtain writing process data for all the children, but the study of 25% of the total sample will allow us to make the necessary process-product relationships which are imperative for substantive understanding of what it means to learn to write in the childhood years. In this phase, the shift in our focus is towards the development of the individual child's writing and knowledge systems in the face of different writing tasks situated within different activity settings - ranging from writing to test previous learning to writing as a tool for exploring ideas. Of particular emphasis is an examination of children's writing processes and of the changes that occur which are related to the nature of the writing-based learning opportunities, the roles and interactions of peers and teacher, and the wider organizational structure of policy and beliefs that shape the intellectual life of classrooms. All three of the aforementioned factors constitute the ethnography of writing instruction and curriculum, with each in dynamic relationship to the others. Furthermore, some are more changing over shorter time spans than others, although all are non-static. For example, the school's language policy on writing is more stable than the classroom conditions for writing.

Within this brief report attempts will be made to connect these two strands and the quantitative with the qualitative as well.

2.0 TEXT ANALYSIS FOR CROSS-SECTIONAL & LONGITUDINAL PATTERNS OF CHILDREN'S DEVELOPMENT AS STORY-WRITERS

Before discussing the patterns of development actually observed from reading children's texts, it is necessary to articulate the assumptions that guided this strand of the study.

Writing is a complex activity because the composition of any text requires skills in operating upon, and simultaneously with, several variables. It is not surprising, therefore, that its development is equally complex. This observation suggests that the development of executive control over each constituent variable in combination with

others for any writer is not simply a linear progression. Further, written language, like oral language, is a "complex web of interconnecting systems", including syntactic, semantic and discourse rule systems (Nelson & Nelson 1978) and children do not display their knowledge of these systems in neat sequential order. Also, written language is not an independent entity but is subject to the demands of the situation. The writer has always the potential to combine its parts according to her intentions, style, and assessment of the writing situation. However, acknowledging individual differences and variation in development does not make research which sets out to chronicle developmental patterns futile or useless. Instead, by intensive comparative study of a corpus of writing produced by individual children of three age cohorts over a period of two years, it is possible to distill patterns which suggest generic frames which children know and have control of, and which they use when they write. Also, it is possible to document the growth patterns from prototypical control of a frame to more expert control, i.e. using the the constitutive elements of the frame in increasingly interesting and complex ways, thereby generating texts of differentiated quality.

How did we identify development from the texts the children produced? We began with the following assumptions. The signs of achievement present in children's writings are evidence of what they already know and over which they have control. These signs can be used to understand the frame within which the child is operating. Initially, a particular frame may be used in its prototypical manner, but as the child experiments with new ways of using a particular frame, he or she is also developing more differentiated control of the constituent elements of the frame. The consequence is that qualitatively different texts are created although they are from a generic frame. Thus, each more elaborate use of a frame marks a child's growing competence to construct increasingly complex treatments of subject matter.

These assumptions lead us to posit that children's meaning construction develops along at least two dimensions. One is gaining control of a range of generic frames, and the other is developing increasingly expert and creative control of the constituent elements of a frame so as to exploit its full potential rather than merely using it in a prototypical manner. It appears from analyses of our data that the sequence of development for the former dimension is more predictable than the latter. Secondly, the latter is more vulnerable to the nature of the learning experiences with which the child is provided. In fact, some children either remain at a plateau of development, which is using the constituent elements of a frame in one familiar and fixed way, or in the worst cases their control remains undeveloped in the sense of only using a frame in its generic form. From the texts written by children of various ages and abilities, we maintain that it is possible and feasible to determine children's growth as writers, if developing writing is perceived as a gradual sophistication and discrimination of generic forms and elements at two levels of control: integratively and differentially. At this point, it is important to account for the way the 72 children's writings were selected, collected, and read for signs of achievement.

2.1 Analysis Procedures of 72 Children's Texts

There were no attempts made to administer set writing assignments. The goal was to obtain authentic children's classroom writing, and it was assumed that writing done as part of their classroom learning experience was more meaningful than externally imposed writing assignments. Thus, we claim that the texts we collected are naturalistic. The collection was done by requesting the child, the teacher, and the school-based researcher to select what she or he considered to be the child's best piece of writing in the Fall and Spring of each year. Since there was no possibility of predicting the topics of writing done in the various classrooms in the four project schools, and yet

we had to ensure comparability of data, the texts were also selected according to three kinds of activity settings which were typical of Toronto elementary school curriculum. They are:

- "Individual Writing": writing considered by the child and teacher as story-writing about real or imaginary content on topics chosen by the child or within general boundaries designated by the teacher, for example to write a mystery story.

- "Content Area Writing": writing understood by the child as requiring him/her to deal with content in a factual manner. Often the child understands the writing to result in information booklets or equivalent forms. Topics are those typical or related to social studies, environmental studies, or science.

- "Social Writing": writing to which the child can realistically expect a written response, and therefore the audience is real e.g. dialogue journals, letters, invitations, cards.

Four graduate students (Barbara Barter, Margaret Cameron, David Coe, and Elizabeth Strauss), Gordon Wells and Gen Ling Chang composed the working team whose first task was to make explicit the signs of achievement which each used for distinguishing each generic frame and its related more complex forms. This first task was carried out using forty-eight anchor papers. Their second task was to be responsible as a team of raters for evaluating each of the 72 children's cumulative writings in order to chart his/her development.

For the initial task, the forty-eight anchor papers were selected by identifying the most and least mature writer in each class. This was done by triangulating the school-based researcher's identification with that of the senior researcher responsible for writing. The former made their choices on the basis of their detailed classroom observation of the children, while the latter formulated her choice from having read the entire database of written texts collected in the first and second year of the research project. Having identified the writers, the best piece (if there were more than one) belonging to the "individual writing" category was selected, one for the Fall and Spring of two years. The outcome of the team's analyses was the production of the developmental scheme for understanding children's meaning construction of narratives. There were plans to produce a related scheme for the second category of writing i.e. "Content Area Writing", but unfortunately we were faced with time constraints.

The scheme for understanding children's meaning construction of narratives was used for the second task - which was to chart each of the 72 children's development in this area of writing. In brief, the raters each read 374 scripts: School E 98; School C 92; School L 94; and School B 90. Of these, 126 scripts were from the Sk/G1/G2 cohort; 130 were from the G2/G3/G4 cohort; and 118 were from the G4/G5/G6 cohort. Each script was subjected to three independent ratings as the six raters worked in teams of three. From all these, the following are the qualitative and the quantitative outcomes regarding children as story-writers. In both sessions of rating - the forty -eight anchor papers and subsequently the three hundred and seventy-four narrative texts - were read with all identifications of author, gender, school, grade, time it was written and collected, and the author's ability as a writer deleted. In other words, the scripts were rated blindly, and each script was assigned a code for identification after it had been rated.

2.2 Qualitative Patterns of Development: Children's Meaning Construction in Narratives

Frame A: This is a frame for learning to represent meaning through developing control of a writing system, and the distinctions from other symbol systems. The child operates on the knowledge or assumption that writing, or what counts as writing, is a method of representing her/his meaning construction in a visible form. On the basis of this assumption, "A" is the generic frame which the child uses to explore, to learn, and to gain control of the conventions of an alphabet-based signing system (English), especially its graphemic structure and form. Also, the child's writing tends to use a minimum of two representation systems - pictorial and written. Within frame "A", there are three relevancies which the child learns in order to use the writing system as a technology for representation: the capacity to assign meaning to signs; the capacity to symbolize in English by controlling its graphemic structure and form albeit at the squiggles level to correspond to letters, words, or sentences; and the capacity to represent an emergent notion of "wordness" and/or "sentence sense" and their architectural appearance. Within the generic frame "A', there are three distinct patterns of developing its constituent elements: A1, A2, and A3.

A.1: At A.1, the child makes a distinction between writing and drawing. There exists an awareness or emergence of graphic symbolization to encode meaning - the signs made are distinctly different from drawing. But, how does the reader know that the distinction is being made? Often the writing component is represented by the repeated use of a particular sign or pattern of signs on the page. These approximations of the form and structure of letters, words, or sentences are not intelligible to any reader. Unlike the writing component, the drawing component of the text is more often than not interpretable and very often the writer, if asked to read, would rely on the drawing component to aid the "reading" of the written. Sample Texts : JJT120, LLT44

A.2: The relevancy for the child is not only to control the graphemic form at the letter-level, but also to structure the signs or letter-like signs in word-like strings to represent interpretable words. For example, the child clusters several "B-like" signs together to represent a word. Amongst the writing, there may be instances when a word is interpretable. If this is the case, it is either a word which is familiar to the child, for example, her/his name, or its the result of copywriting. Copywriting is writing based on adult models which are either provided by the adult (the adult writing is often just above the child's) or it is result of the child's use of models present in the immediate print environment. The latter is detectable because of the accuracy of conventional symbolization as opposed to others on the page. It can be assumed that the child is interested in achieving conventionality in symbolization and representation. The most common examples we had are scripts in which the texts were written mainly by an adult scribe (teacher) except for a word or two which are written by the child (this is obvious from the difference in penmanship), or texts in which the only conventional component is the child's name. Drawing is still an integral component to the total text, and the assumption that pictorial meaning is to a certain degree transparent is applied to writing since the child has not developed sufficient control to provide at least the minimal number of cues for his/her writing to be meaningful to a reader. Sample Text:LXB36, SXT175

A.3: Besides the drawing, the composition consists of a string of letters, some of which are conventionally formed whilst some are approximations. At this stage the child's text demonstrates concern for control of letter conventions. Even though some of the letters are conventional, they do not form an interpretable word. Rather, each letter represents minimally a word and together they form at least one proposition. Also, the manner in

which the letters are spaced in a string rather than randomly located anywhere on the page provides strong suggestions that the writer intends to compose at a level which is beyond the single isolated concepts. Instead, the string of letters indicates the development of composing of propositional meaning at either the phrase, clause or sentence levels of textuality. Although it is possible for an adult reader to recognise all the aforementioned in the composition, the meaning of the string of conventional letters remains unintelligible owing to the fact that the writer utilises an insufficient number of conventional cues or symbols to enable the proposition to be understood. Sample Texts: SXG152, ADS276

Frame B: This is a pre-narrative frame, which in brief can be described as a concern with labelling and attributive writing. Frame B is the threshold frame prior to developing narrative or non-narrative frames. There are four possible patterns of development within this frame: B1, B2, B3, B4. What is common to all four is their patterns demonstrate the child's development of letter shapes, linearity, and letter-sound correspondence. The child's meaning composition centres around labelling a picture drawn, single concepts, and attributes of a single proposition, if he or she is beyond the single concept single sign correspondence. Frame B also includes the differentiation of writing and pictures as two independent semiotic systems. The child begins to show signs of understanding that, unlike drawing, meaning in writing is not tacit nor transparent. This knowledge stems from the fact that using a single letter, for example "K" to represent "cat", is insufficient as a cue to retrieve intended meaning particularly at a later reading. The child on her own relies more on sound strategies than visual strategies to guide the production of written language and makes hypotheses about oral and written language correspondence e.g. invented spellings. There are exceptions to this developmental characteristic in instances where the child is exposed to a lot of adult guidance or intervention, or in instances of second language speakers of English. We suspect that, particularly with children who are speakers of Chinese, a non-alphabet written system, they rely more on visual than on sound strategies to gain control of the graphemic representation of meaning.

B.1: Where there is a drawing, the text meaning is subsidiary, often consisting of isolated words which label elements of the picture. Another common form of text is a list of words, the complete meaning of which is to be found beyond the text. At this stage, the writer may insert single words in spaces in a text written by another, probably at the child's dictation. Meaning construction centres on naming of prototypical or basic concepts, and is expressed holistically in the form of common or proper nouns. Sample Texts : LXB133; CIF185; RXG92

B.2: Text typically consists of a single proposition which re-states or re-presents something obvious in the accompanying picture. In other words, the meaning that is in the text is a re-presentation in language of what is told pictorially. For full appreciation of meaning, the text-meaning is not autonomous from the picture-meaning. This means that there is a need to refer to the picture or, if not, then a sense that the writer should provide more cues in the text in order to enable the text-meaning to be fully autonomous. Sample Texts : SXG152; MXK56

B.3 Meaning consists of two or more related propositions based on an episode. Typically the reference is to a single moment - a 'still' in an unexpressed larger structure of temporally organised events. More often than not there is drawing, and if so meaning tends to be more complete in the drawing than in the text. Unlike category B.2, text meaning is no longer a re-statement of picture-meaning, but it is an extension of that in the picture, the former departing from the latter. However, text-meaning is constructed such that it relies on the picture to complete its meaning and it also assumes that the

reader will be able to make the necessary complementary connections between the meaning in the text and that in the picture. The aforementioned general nature of the meaning in the text is recognizable, but frequently for fuller comprehension it requires an oral rendition by the writer owing to the writer's nonconventional ways of symbolization. Sample Texts : JJT52; MXL81; KIN12

B.4: Construction of meaning within the text is neither supportive nor an extension of picture-meaning. It stands on its own and tends to be a record of the obvious and/or salient features of an experience, event or phenomenon, which may or may not be represented pictorially. What is recorded or written is what appears to excite or is meaningful to the writer. Meaning is literal i.e. simply records baldly, focussing on the concrete and at the level of specifics. Typically, the composition is straightforward telling of simple immediate observations which are implicitly chained, giving an "andness" to the nature of meaning constructed. The nature of meaning is not only at the general recognition level, but also comprehensible because there is a sufficient number of cues in the text that are interpretable. Sample Texts : GXG66; ADS99

Frame C: This generic frame constitutes the child's emerging control over the ideational and textual structure of narratives. There are six possible patterns of developing this frame. They are C1 to C6. We believe these patterns of development are suggestive of several factors. The most obvious is children's notions of what counts as a story and its form based on their experiences of stories being read and/or stories being told. The latter also differs whether the stories told are oral renditions of stories by an adult, such as grandma, or oral enactment of stories as seen on television. Each prototype of storying is represented by this frame.

Another factor is the consequence of classroom experiences. Teachers make explicit to their children the elements which constitute a narrative. But they differ in their terms of reference, the ways they and their children talk about them and, thus, think about them, which in turn has metalinguistic and metacognitive consequences. For example, some refer to stories as having a beginning, middle and end, whilst others refer to them as having a plot, characters, problem, and solution. These different ways of meta-talk are the consequence of what teachers consider to be appropriate language for children at different ages, which, of course, is a debatable issue. But, what is significant is that these differences mark the the various patterns of C development. The ability to compose a story-meaning is common to all, whilst the degree of facility with the essential elements varies and, at this stage is not consistent. The patterns demonstrate the child's capacity and attention at creating a narrative with what she or he knows to be necessary elements. However, they are either prefabricated forms (e.g. Once upon a time.., One day.., The end) or minimal symbols of story components. Using this frame, children's efforts are focussed on constructing a narrative representation and the elements are textualised by using various familiar forms and ideas.

C.1: Topics selected may be first or third person real or imagined experiences. There is the emergence of a narrative stance because of the use of standard story openers and sometimes closures, without which it would not be possible to discover that the writer intends to write a story. The composition consists of a number of episodes within an implied story-like framework. But, the basis of the relationship among the episodes remains tacit, and therefore frequently demands guessing or inferencing from the picture (if there is drawing), which by this time takes on an illustrative function. What each episode might serve in terms of a narrative function is unclear. Ordering of episodes assumes the linear order of natural time with no deliberate use of the time element to achieve any particular effect. Episodes centre characteristically on actions, with no or little mention of mental states or feelings. Although the foregoing features of meaning

construction are obtainable, a fuller reading of the storyline is markedly interfered with by the unconventional nature of written language conventions such as spelling. Sample Texts : EEW47; KXA38; NNC139

C.2: Unlike C.1, the storyline is completely interpretable owing to sufficient control over written language conventions, and the composition of meaning is certainly within a narrative framework. Narrative is not only implied by openers and closings used, but is evident from elements serving discernible beginning, middle, and end narrative functions. However, one element may be more developed than another, with a particular element being minimally constructed (e.g.JXD20's end). In this category, typically and frequently the middle element or "body" of the story is most elaborate. Incorporated in the "body" of the story, a story-problem, so to speak, is implicitly signalled. Composition of meaning also implies a brief passage of time, making use of natural time or the natural order of things to sequence the presentation of meaning. Conjunction of events within and between elements is tacit and is assumed by the writer. The "andness" to the quality of meaning is maintained, providing an evenness in pace. Sample Texts : JXD20; CCJ24; MYL11

C.3: A sequence of events related mainly by temporal succession, but with some trigger-action or action-consequence connections made explicit. These may include single mention of, or reference to, affective states which are implicitly related to the actions in the story. The notion of story-problem is further developed in that there is explicit mention, and it involves a single, simple problematic situation. However, there are no suggestions to its resolution. Consequently there is a sense of incompleteness or non-closure. Sometimes in the absence of resolution, there is instead a comment. There is an emergence of the concept of location as a story element, as well. However, location at this point of development is used by the writer for its most basic function i.e. as place or site where action occurs (e.g. in the bunny's hole in LXW33, inside the haunted house in MNC84). Meaning construction also includes attempts to set up different expectations by means of changing the evenness of pace through lexical or syntactic decisions (e.g. the "but" in LXW33; the "too but" in MNC84). Sample Texts : LXW33; MNC84

C.4: Like C.2 and C.3, this category still focusses on meaning composition as a sequential narrative account of real or imagined situations and/or events. But, the account is constructed with the use of dialogue as the central and integral medium through which it is told. (N.B. This category does not include texts which use bits of dialogue to expand or elaborate the narrative, and the dialogues are not the dominant mode through which the story is told. Also, the omission of conventionalised punctuation in the text should not change an assignment to this category if the text meets the characteristics of this category.) Owing to the dialogic structure, meaning construction is much less about events of behaviorial action and its progression, but more on the interaction of mental states such as wanting to know, wishes, desires which then motivate events. Thus there is an emergence of story-events as the outcome of inner states of the characters, rather than behavior which leads to another i.e. with the latter being the direct, immediate outcome of the former. With this, there is also an emergence of the notion of logical connectivity being more complex than simple linear linking, for example, two events are linked via a particular mental state rather than directly between themselves. (See LMW63 in which the speculation that - "I don't think the baby dinosaurs could grow." bridges the event of asking the dinosaur about the speculation with the event of the dinosaur asking for help.) The notion of story-problem remains, however, as naive problematic situations. But there is suggestion of novice notions of resolution, which is ending the story on a friendly and happy note, thereby implying the problematic situation is resolved, without actually articulating in some way the

resolution itself. Sample Texts : EEM9; LMW63

C.5: A simple story, with the emergence of internal narrative elements such as predicament and resolution. Typically there is a recognizable predicament and it is given some resolution, often by the intervention of magic. The predicament is a development from the notion of story-problem to that of narrative conflict. At this category, narrative conflicts are variations within the interpersonal type. Meaning is generally interpretable, but relationships between propositions often have to be inferred. Meaning constructed also includes beginning consideration of the notion of protagonist. This notion is realised by ascribing to the characters either agents' or patients' roles, or characters are given uneven descriptive details, or the relationship of characters to each other is articulated in typical kinship or friendship terms. Thus in this category, events are no longer baldly narrated, but some connections to the roles of the characters in the story are naively attempted - how characters' roles influence events and vice versa. Sample Texts : FEC180; LAH101; MIY105

C.6: At this category, efforts at characterization are no longer just emerging, but are given obvious consideration. First, notions of characterization are developed by constructing narratives out of one character's experiences. And second, by means of comments on the character's thoughts and feelings. A single character story makes it initially more possible for the construction of character in terms of his/her experiences, thoughts and feelings. Co-occuring with the latter is the beginnings of an affective dimension in narratives in terms of cuing the reader's emotional response to the story such as to shock, to frighten or to create suspense. However, the comments and explanations are not elaborated or dealt with in a considered manner; they are noted and in a tacit way serve the function of characterization. Also in this category, the concept of space is more than just the site of an event. It has symbolic function in its contribution to the story-line, which at this point remains implicit. There are minimal suggestions of the writer developing an intertextual sense, but only in terms of his/her narrative having evidence of antecedents in the storybook world in a bald way. For example, the names given to characters such as "minotaur" (See KXA50), and "King Arthur" (See RWB77). Beyond the use of familiar names, there is no symbolic or literary connection between the story constructed and the particular antecedent. Sample Texts : KXA50; RWB77

Frame D: Generic frame D is going beyond the obligatory story components to the development of elements which integrate the obligatory, such as a fully developed context as opposed to using a phrase. Another integrative element is the interplay of several characters as a way of linking the story or progressing the storyline. The patterns of development within this frame, i.e. D1, D2 and D3, also include the emergence of a story theme, which is another way of providing a thread or threads of discourse to the narrative.

D.1: Narrative shows some shaping over sequencing of events. This gives a sense of internal structure to achieve a 'complete' story. Evidence of shaping lies in the almost meticulous nature of the details provided. There is some form of conflict or predicament, which has both a motivation and a resolution of events or the story-line. However in this category, conflict/predicament is that which belongs to the relating of selves with the world rather than simply between people as in C.5. In other words, the concept of narrative conflict has expanded to include simple moral/ethical concerns. Fantasy and magical happenings frequently provide the subject matter and there is often a naive concern with the triumph of good over evil. Titles are used and there is a clear opening. There are some dialogic dialogue-like snatches. Sample Text : TAL127

D.2: Some parts of the story are developed with detail and they contribute to the wider effect. The concept of space has developed to include the notion of narrative context. The setting is usually specified and there is a focus on location as significant specifics of the story-line. Several characters may be involved in the story with perceptible narrative roles. Dialogue begins to take on a more dramatic role, contributing to the development of the plot. Events occur in a clear sequence, and the narrative is governed by story-time rather than real time. There is usually a clear termination, often marked by 'The End'. Topics often involve mystery and death and there may be an attempt to frighten or shock, a consequence of the choice of idea units or lexical decisions. Some awareness of audience is shown in the use of parentheses and asides. Sample Texts : MXC35; CYL182; ANC102; IXI62

D.3: Although simple, the story gives a sense of having a point. This may be produced by the introduction of a particular element at the beginning which plays a central role throughout or which contributes to the conclusion. A variety of events occur, with some deliberately given intensity. Well-considered characterization occurs, both through appropriate naming, description, and through the character's dialogue. Characters begin to reflect on situations: their thoughts and feelings are reported. Closure is achieved through shaping of meaning units, not just through 'The End'. In developing explicit concern with what constitutes closure there is the beginning of a moral to the story, which is not always explicitly stated but alluded to. Topics may combine reality with fantasy. Sample Texts : LXL134; AAL16; RMP51; MMW27; LAH69

Frame E: This generic frame represents children developing what might be called the optional elements of a story. The author's concern is not just to compose a well-formed story, but also to exploit elements such as surrealism, flashbacks, juxtapositions of events, characters etc. The concern is obviously to create a unique narrative. This frame also includes the development of the explicit presence of the narrator in the storyline, either as an actor, commentator, or actor-commentator. Also, the writer achieves genre characteristics in her or his narrative so that it is unmistakably a mystery story, or an adventure story, for example. All these features give rise to three patterns of development within the generic frame E: E1, E2, E3.

E.1: The presence of the narrator begins to be felt, for example in the deliberate manipulation of events in order to make the story interesting, e.g. begins in mid-story, use of flashback, end related to beginning. The title is chosen to entice the reader. Writing of notes is characteristic of this stage: writing within the writing. At this category, there is a concern with developing a well-planned narrative through consistency of idea units, vocabulary and syntactic choices. The referential and coherence connections of idea units are no longer assumed by the writer, but show evidence of making the connections more explicitly or clearly for the reader. Sample Text : DXC116

E.2 The story tends to be quite long but this is necessary to the working out of the theme. Relatively, fewer events occur but they are developed in more detail; there may be stories within the story. A clear sense of internal structure is shown by division into episodes, each having its own title or chapter titles. Topics tend to be concerned with personal problems and there is a concern with characters' feelings, which are reflected on and/or explained. If the story involves fantasy, this tends to have parallels with real life phenomena, e.g. specific time is cited. Fantasy also extends to the realm of dreams, which provides for the emergence of a surrealistic quality to the composition. Control over insuring referential and coherence connections is explicit and develops in the direction of including a concern over the integratedness of the story i.e. how the story hangs together as a whole. Sample Texts : BBT146; RXP44

E.3: Evidence of drawing upon the documentary reality of literature in the creation of the narrative is shown in the treatment of the narrative theme. Meaning structure and composition takes on a more genre-specific style through the emergence of a particular narrative tone. This is achieved through considerable ideational creativity and the emergence of the narrator's personal voice. Humour is used not so much to entertain, but to cue a message. At this category, there are the early signs of narratives which serve not only to tell a good anecdote or account, but to comment as well. However, at this category, this function of the narrative is only emerging and is not a central focus. Sample Text : IXB113

Frame F: This frame is generic to developmental patterns of control of narratives not only at the level of its constitutive elements in order to obtain the desired story, but also at the global level as well. In other words the control of the writer is that of moving between a holistic view of the story and its contributory parts. The nature of this control of meaning composition is evidenced by the fact that the author's storyline is no longer necessarily linear. It can be cyclical and recursive. Another source of evidence is that in her or his texts the writer shows an emerging awareness of narratives as a transmitter of values. The meaning composition includes a consideration of narrative as a form of moral, cultural and/or political comment. Having any of these goals in mind, the narrative is constructed in ways that must consider the global and the particulars. There are also signs of the child drawing upon literary models or devices.

F.1: The re-construction of literature in new ways remains an obvious part of the composition. A considered and well-developed narrator's voice is attempted, which is consistent with an explicit intention to cue reading in a particular manner for example a satirical reading. Narrative is clearly not only telling but includes commenting. Development of a commentative tone through snatches of narrator's comments. These provide the composition with the quality of a situated perspective on the part of the writer. The emergence of snatches of narrator's comments increases the sense of reader-awareness in the composition. There is evidence of author's involvement and control in e.g. setting of mood, development of the plot, use of dialect in dialogue for characterization, setting up of expectations. The reader is invited to take on more active participation, e.g. use of irony, invitation to speculate or solve the problem, consideration of social consequences. Sample Texts : IXB183, MXC151; LLH95

F.2: The story-line is no longer simply linear, but cyclical and recursive, with a strong sense of plot. The writer creates an individual and internally coherent story-world and draws upon established domains of knowledge and personal factual knowledge to give richness of detail. Shows awareness of larger social issues, recognizing that moral reconciliation can take more than one form. Composition of meaning includes idea units which indicate an emerging awareness of another function of narrative - as transmitter of cultural or social values. Narrator's comments are clearly not neutral, they include the writer's world view. Sample Text : JOP128

F.3: Clear plot, which progresses in a coherent and organized way with a number of episodes. A viewpoint is well-expressed. Characters show awareness of the feelings of others. An integration of protagonists and antagonists. Successive turns in dialogue used very successfully to introduce and develop story material, e.g. '"Hold on tight Julie, 'cause look how high we are." "Hey Robert! Look over there! I think I see something like an island..." "I think I see some little people and creatures down there and I think they're waving at us."'. The story has a well-rounded close. The overall impression is of a well-crafted and interesting story. Sample Text : BBT4

Frame G: This is the literary frame, where the child strives to attain literary qualities

in his meaning construction. Its meaning composition is located within the intertextual world of a subject matter at the ideational level, as well as the intertextual world of texts and stylistics.

G.1: Moves beyond personal experience or fantasy to deal with a serious contemporary issue, showing empathy for the predicament of the story characters. Writes with authority and expresses a personal moral attitude. Arouses the emotional involvement of the reader. Draws very effectively on content-specific knowledge such as geography, politics, etc., perhaps involving research, to give specific substance and credence to the story. Good sense of time in tieing the strands of the story together; well-structured ending. The function of narratives to transmit social or moral or cultural values is not only emerging, as in F.2, but is deliberately well-crafted through multiple devices and at different levels of composition. The narrator's world-view is well-projected and intentionally so. Indeed, the writer is intentionally not absent from his/her writing. Sample Text : JOP88

2.3 Progress in Writing: A Quantitative Cross-Sectional Account of Children's Narratives Produced Over A Two-Year Period

Having evaluated each paper in terms of the developmental framework just described, the next stage in the investigation was to examine the papers produced over time by individual students. Was the general trend for each successive paper to be at the same or a higher level than the level to which the previous paper had been assigned? The answer to this question turned out to be not altogether straightforward. Within any particular year, there was a strong tendency for the second paper evaluated to be at the same or a higher level than the paper evaluated at the beginning of the year. However, when the longitudinal analysis was extended to include papers from more than one year, it was found that, in the case of a significant proportion of children, the level to which the paper written at the beginning of the later year was assigned was lower than the level to which the paper written at the end of the previous year had been assigned.

A number of possible factors may have contributed to this rather unexpected result. One possible cause of this apparent regression is the intervention of a period of some two months in the summer during which no sustained writing is undertaken. In effect, what is being suggested is that children 'stiffen up' - or even forget previous learning - during the long vacation and require a period of several weeks to regain the level attained at the end of the previous year. Certainly this is what many teachers believe about the temporal pattern of children's learning in general and, acting on this belief, some educational jurisdictions have attempted to provide appropriate vacation activities in reading and mathematics to try to avert this effect.

A second possibility is that, since the majority of children change teacher at the end of each year, the retreat by some children to a developmentally less advanced type of narrative writing at the beginning of the new school year may be the result of their feeling less secure in a new classroom environment, in which the teacher's expectations are still relatively unknown. Some support for this hypothesis is to be found in the fact that those children who stayed with the same teacher in two successive years were less likely to perform at a relatively lower level at the beginning of the second year.

Of course, to speak in terms of 'regression' is to presuppose that what the child is capable of doing at one point in time is no longer within his or her capacity at a later point in time. But we have no evidence that this is the case. All we can say from an evaluation of the papers that we collected is that, in some cases, the level of the narrative writing at the beginning of the second year was lower than at the end of the previous year. It would probably be more appropriate, therefore, to speak in terms of a

performance in which less demanding goals were set or achieved, leaving the question as to the reason for this to be investigated in the future.

Whatever the cause of this phenomenon, the slip-back in level of performance was found to be only a short-term matter. When the papers of individual children were compared holding time of year constant (i.e. comparing fall with fall and summer with summer), in the vast majority of cases, the paper written in the second year was at a more advanced level than that written a year earlier.

Figures A.1, A.2 and A.3 show the results of longitudinal comparisons made over the second and third years of the project. Together, these figures cover the elementary grades from One to Six and show, for each individual child, the gain made from the level attained at the beginning of the second year to that attained at the end of the third year.

[Insert Figures A.1, A.2 and A.3 about here]

Taking all three age-cohorts together, data are presented for 59 children, this being the total number for whom the data were sufficiently complete to allow the longitudinal comparisons to be made. (In the case of some two dozen additional children comparisons could only be made over one of the two years, as the children in question changed schools during the course of the study.) This statement needs further qualification, however. It proved impossible to collect papers in the spring of Grade Six for the children in School L, as they had apparently not done any sustained writing during the latter months of that year. However, as these children spent both the years in question with the same teacher, it seemed worth including the results, since they show that substantial gains were made by four of the six children in the twelve month period from fall in Grade Five to fall in Grade Six. By contrast, the Grade Five/Grade Six children in School B, who also spent the two years with the same teacher, made very little progress over the full two years. Examination of their writing folders and also of the observational records from this classroom suggests that the reason for this is that children in this classroom were given little time to engage in sustained writing and that little interest was shown by their teacher in the writing that they did produce.

With such a relatively small sample, it would be unwise to draw any firm conclusions from the results represented in these charts. However, it is clear that, comparing children only within the same age-cohort, there are substantial individual differences in the amount of progress made over the two years, the differences becoming greater in the higher grades. When the children are grouped by ethnolinguistic background, (cf. the letter enclosed in parentheses after the child identification), however, the evidence suggests that amount of progress is unrelated to ethnolinguistic background.

Finally, these charts can be used to gain an approximate indication of the level likely to be reached by children at a particular age or grade. For example, at the beginning of Grade One, the children were distributed between levels A3 and B3, whilst at the end of Grade Four they were distributed between C5 and F2.

Since the analysis reported here was carried out, the scale has been described in a number of workshops and lectures, and several teachers have used it to help them evaluate the stories that their children wrote over a period of several months. Reports received to date have been favourable, which suggests that the scale could have a wider usefulness amongst those elementary teachers who are interested in systematically investigating the writing development of the children in their classes.

2.4 Progress in Writing: A Qualitative Longitudinal Account of Three Individual Case-Studies

To illustrate in a qualitative manner what is summarised in the charts just discussed, this section will describe the progress made by three children from Fall 1985 to Spring 1987 by examining in detail the stories that were collected in the fall and spring of each year. The focus is especially on aspects of their progress which are not immediately observable, with the hope of revealing more about children's notions of writing from the narratives they write. Their stories are to provide illustrations of the kinds of development outlined in our analytical scheme. For these purposes only the most salient features in each composition are discussed.[1]

2.4.1 Natalie the Beginner Narrator:

Natalie's Compositions, Fall 1985: Appendix 3.1.1

Natalie's Composition, Spring 1986: Appendix 3.1.2

Natalie began at the level of B.2. Initially, she demonstrated little progress, except in gaining some control in her spelling e.g. "CAT" - one category within the text production growth strand. The following are the significant features of this level of development.

- Both compositions demonstrate Natalie's emerging awareness of the relationship between conventional graphic symbol and referent. The letters of the alphabet ("O F I T Q" in 3.1.1, and "W T r YCAT" in 3.1.2) presumably encode the meaning she wants to express, and this meaning is related to her drawing. She does not succeed, however, in evoking a meaning that is comprehensible to a reader. Most probably, on a much later occasion, Natalie herself will not be able to read it, especially if the drawing is removed. However, the dependency of the text-meaning on the picture-meaning is typical of this level of development, and continues to be so until drawing begins to play either a subordinate or complementary role. Children at this level use a pictorial representation to encode their meaning-creating, even though there is some text. The picture meaning remains central, and part of it is re-told in text form. The result of this is that the construction of meaning in the text is intimately part of that in the picture. It is not autonomous.

- Yet, it appears the choice of which letters of the alphabet to write may not be entirely random, if the choice is driven by the child's intended meaning. Natalie's choice of letters indicates an emerging awareness of the neccessity for systematic correspondence between what is said (or written) and what is meant, otherwise she would have chosen to write a string of just one letter or letter-like symbol. Natalie also demonstrates that she knows that another composing task of any writer is to endeavour to mark the correspondence between text and meaning distinct from the next meaning unit. In other words, not any one letter will do for textualising her entire message. Each different meaning unit requires a different symbolization. Again typical of children at this level, the symbolization is not necessarily coterminous with the meaning unit as in adult writing. Further, it is not possible to know from writings of this level whether the "letters" display an accurate or appropriate link to the child's intended meaning. At this level, the child is

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[1]For full appreciation of the analyses and discussion of each composition, we would strongly suggest that the reader first reads the relevant story of each child before reading each analysis.

more concerned with understanding the conventional nature of, and gaining control of, the aforementioned correspondence, than with reader's comprehension, since level of mastery of text production makes it impossible to attend to the latter.

Natalie's Composition, Fall 1986: Appendix 3.1.3

By Fall 1986, Natalie has progressed to level B.3. Her achievements are:

- At this level, Natalie continues to express her ideas through both symbol systems: drawing and writing. In her 3.1.3 composition, Natalie has drawn a swimming pool and a girl walking towards it, and her text focusses on her part of a dialogue with daddy about swimming. But, unlike level B.2 where children use the writing part to re-present what is in their drawing (e.g. saying something in the picture that is concretely observable), they now use writing in a different way. It is used to communicate something that is related to the drawing rather than about it. The two forms of symbolization become more distinct in terms of how the meaning constructed in each is related, thereby assuming different functions in the total composition in the youngster's mind.

- Generally, the text meaning is a simple account of a real or imagined single episode. Typically, time is that of a single moment - a "still" in an unexpressed larger structure of temporally organised events. Information about the setting or participants of the episode is implicit, therefore assumptions are made unconsciously about the reader's ability to interpret identity or reference. The focus of meaning is, undoubtedly, concrete and specific to the writer, although it is not necessarily so for the reader. The focus on single episodes marks the emergence of the narrative. The account is narrative-like.

- Natalie's text is now orthographically more complex. Her written language is beyond the single word or sentence. She has progressed to composing at the text level of a few simple sentences. Spacing and syntactic structure indicate that Natalie has a concept of sentence structure, although it is not yet realised through conventional use of punctuation. However, she has less understanding of the segmentation of words by means of spacing. It is likely that the concept of sentence is aided by the natural pausing in spoken language, which children naturally lean on as support when they write. With the emergence of lower-case script in the child's experiences, quite typically Natalie's writing contains an idiosyncratic mixture of upper and lower case script. Finally, she maintains top to bottom and left to right directionality.

Natalie's Composition Spring 1987: Appendix 3.1.4

By this time Natalie has progressed to level C.1. This means the following:

- It is quite definite that the written form has attained dominance over the pictorial. Construction of meaning in the text is neither dependent on nor a projection from the pictorial composition. This piece of writing signifies Natalie's beginning awareness of the "story" and "not story" distinction. Obviously, she sets out to tell the story of Sandra and John getting to know

each other as friends. However, because she uses the conversational framework as a support in her composing, the meaning focus is not entirely on action. It moves between the two major actions of intending to play and getting to know each other, especially at the point when she writes:

```
we never plays yet
we jeast saing some
thing we are a new
friend now lest go
and play ok lest go
now ok but....
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Natalie's apparent dependence on a conversation-to-composition mode of composing exercises limits on her beginning efforts at narrative. Like most children's narrative beginnings, which are not entirely unlike those found in the world of fairy tales, Natalie starts with "One day there was...". It indicates her concept of story-writing and her narrative stance. A similar assumption of Natalie's knowledge is again warranted by her use of "the end" as closure to narratives.

- Her composition contains a number of related 'topics': the meeting of John and Sandra with an invitation to play, an exchange of the kind of homes they live in, and what they might play. The basis of their relationship has to be inferred because cohesion is not made sufficiently explicit for the reader; for example, it is not clear what function the second topic plays in the composition. One possible supposition is that it offers information about the setting. If this is the case, the link is implicit and minimal, and represents what is typical of cohesion achievements at this level of growth.

- Natalie's sentence structures, which are characteristic of this level, contain subjects that are simple, verbs that are simple past/present and, in most cases, without auxiliaries. The effect is one of a predominantly even linear progression, but some important variations are beginning to appear which differentiate development at this level from earlier ones. This assertion is demonstrated by the "but" in line 26. It serves to signal a disruption in the otherwise linear, even pace of telling. It halts expectations to introduce a difference such as an unexpected turn of events, a dilemma, etc. Having agreed to go ahead and play ("LeSt GO and play OK Lest Go now OK"), it would have been logical to describe the play. However, Natalie emphasises that it is not so: she wants to introduce Sandra's and John's dilemma ("but. What we Got to playing what"). This represents a nominal move in the direction of deliberate interference with the linear flow of the text, typical of beginner writers. Most interestingly, the conjunction "but" for children like Natalie is our evidence that they are beginning to use structures that disrupt the predominant textual structure. It is the first evidence of children's intentional manipulation of syntactic constituents or elements to achieve different effects.

We have discussed certain choices Natalie has made in her compositions at some length. There are others. But the ones we have focussed on illustrate well the kinds of significant development and progression Natalie has made. They also present us with the possibility, to be used in discussion with teachers of children and of writing, that these features are characteristic of sequential levels of growth.

2.4.2 Daniel the Entertaining Narrator

Daniel's Composition Fall 1985: Appendix 3.2.1

Daniel began in November 1985 at the level of B.3. This particular piece has several features that are in common with Natalie's 3.1.3 composition; it also has some contrasts, in terms of degree of control. He writes three simple, affirmative sentences, and simultaneously demonstrates the status of his awareness of notions of word and sentence. Both words and sentences are conventionally written, accurately segmented and appropriately punctuated. He uses a mixture of lower and upper case in a standard manner, except for "m" in "my'. It appears that Daniel's focus at this point in his development of the meaning-making and language-learning process of writing is on the latter. This assumption is warranted by the brevity of the piece and by his compositions in subsequent phases of his development. They are much longer compositions that demonstrate the achievements of a youngster who attends to certain aspects of the meaning construction of writing so as to ensure his stories are entertaining.

Daniel's Composition Spring 1986: Appendix 3.2.2

The progress Daniel experiences from level B.3 to level C.3 is primarily achieving the basic narrative form in his writing. The complexities of what this involves are best illustrated by the following analysis:

- Daniel begins his story of a boy and a magical donkey with a characteristic narrative opener - "Ones-a-pon a time thar was ..". His story-line is composed chiefly in simple sentences, aptly using the simple past and present tense. It deals in a sequential manner with the three basic units of narrative. Put simply they are: the beginning (introduction of the boy and the donkey), the middle (the two episodes of magic and surprise of having a wish come true and realising the donkey talks), and the ending (the killing of the donkey in order to possess its magical power).

- More significantly, amidst this predominant structure there is evidence in his meaning-making that Daniel is deliberately giving consideration to the notion of characterization. He achieves this by his choice of more varied and somewhat colourful details to focus upon, for example the donkey's magical ability, which includes the absurd, like "gating your mother in laae {law}". Included in this stage is initial consideration given to establishing the protagonist amongst the characters in a story. However, children at this level achieve this implicitly by means of an imbalance of descriptive details accorded to characterization. Daniel gives "the donkey" much more descriptive emphasis than "the boy". This indirectly involves subordination in the mind of the reader. Although implicit subordination constitutes nominal attention to making distinctions about the differing status characters might have in a story, it is children's early achievement in juggling with the complex notion of characterization.

- Interestingly, Daniel exemplifies for us another developmental trait which is of significance. At this level of growth, youngsters face a different relevance which conversation might have as a support for composition. They encounter the dissonance of knowing that writing is not identical to speaking and that they have to re-align their language production system so as to exploit their oral language capability in ways that facilitate the

composing of meaning in writing. One good illustration to cite is Daniel's use of conversational openers - which are normally polite - in an impolite manner ("Hlo masterd {mustard} mouth") to establish an image of a rather arrogant donkey. To flout the maxim of politeness in normal conversation is to mark an intention, for example, to be ironical, sarcastic etc. Daniel certainly adapts this particular notion in conversation skilfully to his writing. Further evidence of his emerging skill - the artful adaptation of conversational exchanges to his writing - is indicated by the following:

> ..... and
> the boy said wote {what} Did
> you sae {say} donkey and I cant
> boleve {believe} you toket {talked} you
> batet {better} bolive thars not many
> y toking donkeys around here
> you know. And.....

The speaking-writing transition is no longer simply a matter of learning the technology which will enable them to represent in written symbols the words they effortlessly produce in speech (Refer to Level A1 - B3), nor using the dialogic framework in conversation as the central scaffold for composing (Refer to Level C1). Instead, it is the beginning of explicit knowledge of the literacy connections between speaking and writing: the emergence of an analytical consciousness that writing is not identical to speaking. The progression from the discovery of the complex relationship between talk and writing to the discovery of their subtle literacy relatedness becomes the bedrock upon which children strengthen their composing abilities by drawing skilfully on their oral language competence. Consequently, they find writing can at times be appropriately a reflection of, though not identical to, their patterns of speech.

- Beside the effort of establishing the general narrative structure, another significant developmental trait is the early evidence of linking action with character's role in the storyline. Unlike Level C1, where episodic action is baldly accounted, action is narrated as being connected to the characters by way of an implied motivation. Undoubtedly the connection between a particular motivation and an episode, or character, is not always clearly made, as is the case with Daniel's account of killing-the-donkey episode. Motivation in this story is introduced by integrating it into the action of taking the bones and having wishes since the donkey's power lies in its bones. Part of the problem is the difficulty children like Daniel have with reference as a cohesion device. We accept these inadequacies and, from our ability to read to the final part with little confusion, infer knowledge. Daniel's choice of the time phrase - "and in no time" - has the effect of picking up the storyline at a different pace as an effective climax to the story: "he {the boy} touk out his Jack nife and ciled {killed} him {the donkey}". Another interesting feature relating to Daniel's control of pace is his use of quick successive introduction of one idea unit after another: took out his knife, killed the donkey, took its bones, and had wishes. In so doing he juxtaposes the slower pace before the climax with the quickened pace after the climax of the story. Through this device, Daniel also brings attention to the donkey's frivolous arrogance and the seriousness of its fate.

Daniel's Composition Fall 1986: Appendix 3.2.3

By the beginning of the following school year, Fall 1986, Daniel was writing longer and more complex stories while maintaining his entertaining stance in his narratives.

It is obvious that children's consideration of narratives will change as they gain more knowledge and skills necessary for independent composing of stories. Perhaps what is less obvious is the sequence and pattern of development of the various constitutive elements of the story - such as characterization, conflict-resolution, manipulation of temporal and spatial order etc.. This, we hypothesise, will depend on individual differences in children's experiences with story-telling and reading in and out of school, and their choice to focus on and develop different aspects of the complex process of story-writing.[2] Daniel is at level D.2. The following analysis tells us what the achievements are for children placed at this level.

- Some of the developmental traits described earlier are, of course, still observable, although this composition represents advances in some quarters. The achievement in creating a comprehensible text is quite marked. Syntactic deviations from the basic SAAD mark the consideration given to referential information orienting the reader to setting (e.g. See Pg 1 of story), protagonist and situation (e.g. See Pg 2). The extensiveness in the choices Daniel makes pertaining to referential and cohesive systems within a text also indicates a more adept control in the direction of comprehensibility by the young writer. Repetitive use of noun phrases (e.g. the boy in the earlier story) is now abandoned in favour of more precise use of pronouns and other structures that express reference at different points in the main story. For example: a cataphoric reference is made with "I capt {kept} on thinking about wait {what} hapind {happened} last knite {night}", and later a cataphoric reference "And the wirst was yet too come". In the case of "And than it happend again" cataphoric and anaphoric references are achieved simultaneously. In all cases the referential information contributes clearly to the comprehensibility of the narrative.

- Another striking feature is children's construction of predicaments in the story worlds they create even though they are not yet skilful at their resolution. Often the resolution is an intervention of magic or an act of faith on the part of the reader to believe that all ends well when the characters "leeved {lived} hapily ever after". For Daniel, the problem of an entire family turning into werewolves when there is a full moon or when they are angry makes an entertaining story. The somewhat abnormal and disturbing predicament becomes a blessing in disguise when the protagonist faces two burglars. And, on this score Daniel rests his resolution.

- More significantly, there is marked evidence of emerging attempts to comment on the actual feelings and thoughts of the characters, over and above Daniel's attention to making sure that the episodic actions are

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[2]It would require analysis of our entire corpus of stories written by the 72 children before we could suggest the developmental order that certain constituents of story-writing might take. It is still too premature to propose its sequence in relation to other sub-categories within a level. What we can propose at this point is the developmental features of each sub-category. Therefore, the numbering system within the levels of A, B, C and so on do not, as yet, represent a sequence.

comprehensible. Using the first person narrative, the narrator enables himself to be in a position to make his comments on feelings and mental states possible and believable. It would have been much more difficult composing if the narrative was not cast in the first person. Therefore, it is not uncommon for youngsters to use first person narration for the stories in which they are beginning to explore the place feelings have in narratives. Another way is straightforward description. For example, the concern with and the anxiety from being a werewolf are also achieved b halting the progression of the main events with descriptions of the protagonist's reactions to his change.

- Finally, there is an emergence of children being aware of the possibilities the spatial dimension has in the construction of narratives at this develpmental level. Daniel weaves his story around school and home. The former is chosen to represent the predicament the protagonist as a werewolf has to confront - the normal world with an abnormal heritage. In contrast, the latter is chosen to represent the world where he is able to identify himself and sort his feelings out. It is also the place where the turning point of the story is: facing the burglars and frightening the intruders away, thereby maintaining the comfort home offers, where "we talked it over and we all - leeved - hapily ever AFTER".

Daniel's Composition Spring 1987: Appendix 3.2.4

Daniel continues to compose stories that reflect his abilities to entertain since most of his stories have a touch of lightness to quite serious topics. Just like the previous narrative, Daniel knows part of story-writing includes giving his stories suitable titles. "A Very Strange Day' demonstrates that Daniel's progress, at level D.3, means taking on changing focuses and new awarenesses of the complex process of learning the meaning-building and language activities of writing.

- At D.3, children show clear evidence of their understanding of the requirement for special conventions for the language of conversation, especially if it is the mode through which the story unfolds. With dialogue being central to his narrative, Daniel demonstrates his formatting abilities such as quotation marks and paragraphing. The mastery of the conventions bespeaks the young writers' awareness that control over composing is "not a matter of incorporating new rules into an intact oral language production system" (Bereiter and Scardamalia 1982). Rather, it requires a reconstruction of the oral language production system to meet the demands of written composition. When successful, children's texts by this developmental level show hardly any evidence of writing being speech written down. Instead, conversation is used to expand and modify the direction the narrative takes. With an awareness of this new function speech can have in composition, very early in the story Daniel uses the exchange with the cow to carry the reader out of the present narrative moment and to produce an expectation of the narrative flow:

> "Do you know how to get out of here?" I asked the cow. The cow said I don't know. "but if theres anyone who knows it's the lake." So I went to find the lake.

- Furthermore, when dialogue is used in the way Daniel has used it, it accords to the narrative an interactive quality that has a drama-like characteristic. It might well be children's early intuitive forms of play-writing, which perhaps have their origins in their fondness for role-playing and dramatic performance - one form of play and imagination in which they engage. Here the drama-like quality is enhanced by Daniel's syntactic and lexical decisions as well. For example, Daniel writes:

> "Preposterous" I said And then the panther strutted toward me and said hi kid in a cool voice. And then he asked me out for tea."

In contrast to the use of dialogue as a means for elaborating on characters' thoughts and feelings which halts the narrative, Daniel skillfully integrates the projection of the flow of narrative events with that of the moment, when he continues to write

> "I said "Id be happy to have tea with you So of we went to have tea."

In this way the dialogue does not delay forward progress nor does it completely stop it, as would be the case if Daniel had chosen to handle reference and cohesion differently. This is indeed developing a complex skill observable in plays written by adults.

- In his introduction, Daniel makes it clear this story world is an imagined one when he writes ..

> i was walking on my street and suddenly fell through the ground. Down and down I went. As if I was falling into a bottomless pit. And then I hit bottom. Bang! I had landed in a supernatural place.

By maintaining a consistency of elements throughout his narrative, Daniel provides us with evidence that his meaning-building must have been guided by some degree of planning and goal-setting. For example, his thread of narrative discourse is no longer linear, but cyclical: falling through the ground on his street, seeking his return whilst encountering several unusual experiences, and ending on his street again. Daniel has very remarkably introduced from the beginning a fantastical inexplicable quality to his story similar to that found in stories like "Alice in Wonderland" and "The Lion, The Witch, and The Wardrobe." This quality has its basis in the realization that interestingness whilst maintaining plausibility is triggered when the writer deliberately makes realistic explanations needless and redundant by creating an event that enables fantasy to occur in an alternative world. Thus Daniel's notion of falling through his street, in fact, facilitates a plausible processing of the story, and gives the reader a sense of expectation fulfilled.

- Daniel's endeavours to sustain his planning are further exemplified in his consistent selection of ideas to maintain the theme of a "supernatural place": talking animals, paper grass, trees with boots, purple panther, a walking, singing house, a singing sword, and a maze of mirrors. His choice of events to achieve the jocular and fantastical nature of the narrative is

equally consistent: making the cow initiate the exchange, having tea with a panther, ensuring that each encounter does not provide the direction to the lake as with the talking house so that it is not a patterned story, making the sword fly away as he picks it up, and bumping into the maze of mirrors. All these add up to our certainty that Daniel must have composing goals and intentions in his meaning-building process to have achieved a fluent flow in his story of "A very Strange Day".

- Finally, in this particular narrative Daniel manipulates the notion of space rather than time. Space is another dimension and its entry is bridged by a fall, while its exit is walking through a lake. Unlike "Wolfers Away" where narrative space is the juxtaposition of two locations: home and school, Daniel chooses another dimension - the supernatural - as the narrative's location, in keeping with his goal to write a "strange" story. All the foregoing examples and arguments give us the warrant to believe that, by this level, children compose with meaning-building goals in mind as they represent and generate an alternative world through their stories.

As in our analysis of Natalie, we have chosen to make explicit achievements that are less easily observable. We have also assumed that the reader will see that some of the developmental traits in a composition belonging to a particular category continue to exist in another, and it would be repetitive and needless for us to state them again. For example, traces of writing being identical to speaking may still be found in compositions that show evidence of the child having grown into new awarenesses of the speaking-writing relationship. This is so because development is a continuum. Also, at times when children have to focus on exercising a new skill, it causes them to temporarily lose control over their earlier acquired skills until they achieve a balance in juggling the many complexities of composing.

2.4.3 Jonathan the Socially-Aware Narrator

Jonathan's Composition Fall 1985: Appendix 3.3.1

When our project began in the Fall of 1985, Jonathan was writing at level C.2 according to his story entitled "The Best Halloween". What this means is:

- Jonathan's narrative script includes specifying its setting and location - "Thursday 31st Halloween night", "at a dead-end", "a big mansion" - as essential narrative elements. We notice, however, that at this point of growth, setting and location are baldly stated using the basic SAAD (simple, affirmative, active, declarative) syntax, with additions restricted to basic conjunctions (e.g. but, because, then, and) and a limited range of adverbials. Similar syntactic forms are used to cast a straightforward focus of a single episode i.e. an encounter with a monster, with events that led to it - trick and treating, taking a wrong turn, and coming across a big mansion. The narrative concludes with a statement of the writer's reaction to this particular Halloween night experience, thereby providing a beginning, a middle and an end progression to the story. By conforming to the basic narrative structure, coupled with the SAAD syntax, an evenly-paced forward temporal sequence is a narrative achievement which is characteristic of this developmental level.

- Another achievement at this stage is the emergence of words that have

greater specificity than generic words. for example Jonathan's use of "ended up" and "wreck". The introduction of effective vocabulary is minimal, however, and represents a move in the direction of the notion of descriptiveness to provide prominence to the narrative material. Nonetheless, Jonathan's vocabulary choices represent one of children's ways of demonstrating their incipient awareness of the function of details in story-writing. The introduction of words that are beyond the basic and generic category at this level, we assume, is more the function of a growing vocabulary repertoire than the result of deliberately achieving a particular rhetorical effect by choosing words to meet that purpose. Our assumption is based on a lack of evidence in the text that there are goal-oriented decisions serving a particular narrative purpose, which is the case in Daniel's story of "A Very Strange Day".

- Comprehensibilty in his story is not only achieved through orientation of the story by giving information about the setting and using first person narration. It is also obtained through Jonathan's competent control of coherence. Connections are made explicit and do not depend upon the reader's effort. The logical connections in his story are achieved largely through appropriate conjunctions, parallel structures: "Help a human..", "Help a monster!", and casual explanations: 'He invited me to his party. And I've been going to them ever since."

- The decisions of what kind of information to provide prior to the encounter with the monster as well as the manner in which it is narrated indicate Jonathan's understanding of the purpose of selecting information which is considered necessary for a full appreciation of the story. To insure that the narrative befits the title - "The Best Halloween" - and vice versa, Jonathan selected narrative material for the latter part of his story that contrasts with the beginninng. Thus, instead of endeavouring to write an archetypal halloween story, Jonathan composes one which flouts normal expectations in which it is the monster who was frightened ("Help a human he's going to wreck our party"), and who was friendly and harmless ("I won't hurt you", "He invited me to his party".) Jonathan has quite successfully controlled his reader's appreciation of his intention of depicting a wholesome idea of halloween, not so much by means of syntactic or vocabulary choices, but by means of a selection of meaning units which are consistent with his intention and at the right moment in the story he introduces a contrast. Thus, he juxtaposes a typical fearful Halloween-like quality through meaning units such as making a wrong turn, a dead-end and noise coming from a mansion with an atypical Halloween monster who is afraid of humans, friendly and harmless. With this juxtaposition, Jonathan is able to achieve appreciation of the point that Halloween is wholesome and fun. Jonathan's "The Best Halloween" is indeed more than just telling a simple story. It is a short but well-composed story guided by ends-means decisions.

On hindsight, we can already begin to discern even in this composition Jonathan developing as a socially sensitive youngster, and writing is his platform to represent and communicate his social and political awarenesses.

Jonathan's Composition Spring 1986: Appendix 3.3.2

It is almost needless to point out the dramatic progress that Jonathan made in the

course of one school year. "The Coming of Fredericton" represents his development at level F.2. The following represents the major features of this level of competence:

- The story-line is decidedly no longer simply a linear, evenly-paced progression of narrative events. There is strong evidence of the child's intention to create an internally coherent story world along several aspects of the narrative. And to do so, it becomes necessary to modify the narrative pace and progression so that characterization, plot, narrative conflict, for example, could be developed. This entails the emergence of different structures at the textual and ideational levels of composing. For example, in the opening of Jonathan's story we begin to see the way a youngster is guided by the rhetorical sub-goal of establishing characterization of the boy, Frederic, to select content that will be consistent with his subsequent involvement with the animals throughout the story. It would also fulfill the global rhetorical goal of a coherent story world for Jonathan to cast Frederic as being "interested in politics" and "in saving wild life", which subsequently adds a dimension of consistent behaviour on the part of Frederic in visiting the zoo and in possessing very detailed knowledge about the feeding habits of tigers. Jonathan's ability to handle all these elaborate details in a concise manner enables him to facilitate the reader's orientation to the story. More interestingly, at this level Jonathan ably uses a complex syntactic form including a monologue to weave into the thread of his story the introduction of another character - the kangaroo.

  Right beside the tigers a kangaroo was
  watching Frederick and was saying to himself
  "Oh my! What a smart joey! Just the chap
  I want!" Then Frederec went over to the kangaroo.
  "where did you hear that?" whispered
  the kangaroo to Fredrec...

  Both the syntax and the decision to leave an idea unit incomplete ("Just the chap I want") does not altogether halt progression of the narrative. On the contrary, they advance it in a cataphoric manner by creating a sense of expectancy, and simultaneously bringing the two main characters into contact. What direction the story will take is evidently dependent on what the kangaroo has in mind. These examples of creating an internally coherent story world and at the same time advancing the story-line represent the complex management of the reciprocal interaction of lexical and syntactic choices with narrative content selection. More importantly, they exemplify children's knowledge of the textual and ideational structures of narratives, and the possibilities of manipulating the reader's orientation to the story.

- Unlike the compositions previously analysed, at this level children know that they can manipulate the time element in their narratives to affect pace and focus or to provide a background or foreground to related episodes within the story. Jonathan's manipulation of time is a flash-back device that surprisingly gives continuity to the narrative flow rather than interrupting or halting it. Following their introduction to each other, Jonathan generates a change in time when William, the kangaroo tells Frederec how he came to be in the zoo. Going into the past is Jonathan's

way of bridging the present narrative moment with the future and, in so doing, ascribing connectivity by providing an important link. With the flashback, Jonathan has exploited real time to achieve logical time within his story, and its outcome is narrative continuity.

- In addition, the global goal of a coherent story world involves providing, where warranted, background information in an explicit and integrated manner. In other words, judgements of when to provide contextual narrative meaning arise, as well as how to do so within the narrative flow. It appears that these are some of the complex composing tasks, which a non-linear story demands by this level. For example, an account of what happened to William before he and Frederic met is not only a flashback serving continuity considerations, it also forms a story within a story in which the former gives explicit background details that Jonathan judges necessary for his storyline to be comprehensible. Jonathan uses the conversational conditions of an introduction to each other as the natural way for William to recollect past experiences. In so doing, he achieves integration of two stories, with one being the background, but more importantly learns to compose a complex storyline. Another example to cite is the meeting of Joseph, when Joe informs William about the current troubles in his kingdom. This "story" is the necessary back-drop to the battle between the people of Krempton and the Nungunas, which in turn brings about the creation of a new kingdom - Fredricton.

- At this stage, children lean on their storybook-world in their composing, drawing upon its domains and structures of knowledge. For example, Jonathan's story has a cast of one boy and several animals, having some similarities with stories like "The Chronicles of Narnia" and "King Arthur". He has analogous chronicle-like ideas, for example in his naming of the characters and places. The animals are given a human-like quality through their names, while places are given fantasy-like names which add to the chronicle tone of his story. His particular syntactic and lexical choices at different junctures of the story demonstrate evidence of knowing their possibilities for the tone and style of the story as in the following:

> They walked along a path untill they got to a really
> big castle. "That my boy is Castle Kilger. My Castle"
> They went up to the edge of the moat and Will got a
> horn out of a bag that he had and blew a horn nine times.
> Down came the draw bridge up went the portcullis
> a wolf walked out of the castle. "That is Joe" said James.
> "Welcome your majesty and my lord. You came at just the
> right time we have been taken over by the Nungunas...

To reiterate, it is evident that children writing at this level have in their composing repertoire the knowledge of stylistic intentions and possibilities. They shape their stories rather than simply tell them.

- Finally, the conflict-resolution elements in narratives are given more complex perspectives than those which are typical of the other developmental levels (See for example: C.3, D.1, D.2, D.3). Issues of conflict-resolution in the story-world are constructed with some semantic connections by the writer with the issues of our daily life such as war,

inequality, and democracy as in Jonathan's story. In other words, the nature of story-writing changes with the growing understanding of other possible notions of what might constitute conflicts in narratives. The composition of conflict need not exclusively be that which is authentic and belonging only within the story, but could have parallel chords of authenticity and reality in our everyday lives. Put differently, stories are constructed not just to entertain but to have a moral stance - as transmitters of cultural values and attitudes. This new awareness in children finds its expression in their stories in the kinds of ideas generated and selected to compose conflict and its resolution. Jonathan's construction of the battle scene leading to the unification of the two warring groups

> Stop! There is no reason why you shold have a war. Why don't you join each other? Then you would have a larger country.

and the abolition of monarchy in favour of democractic rule

> "And Fred will be King!" "There will be no king," said Fred. You will decide by yourselfes. And there will be no servents let the servents decide their own stuff. But this is what we do: help each other.

are characteristic examples. Although Jonathan's lexical and syntactic choices at this point are less well-managed or less sophisticated than the other parts of his composition, he is composing at a complex ideational level. In fact, he is attempting to orchestrate his knowledge of story-writing elements that are complex in themselves as well as insuring that they fit the global goal of constructing a coherent, comprehensible and qualitatively mature story: a child-constructed chronicle which also transmits the social values in which he believes. Indeed, "The Coming of Fredricton" exemplifies several significant growth points in the child's theory of composition and rational thought.

Jonathan's Composition Fall 1986: Appendix 3.3.3

Though there are similarities between "The Coming of Fredricton" written in the Spring of 1986, and "Alimayu" which was written in the Fall of 1986, "Alimayu" represents advances in some quite important areas. It also represents characteristic features of growth at level G.1.

- At this level, there is considerable complexity and variety in the textual and ideational choices made. In his opening, Jonathan produces backgrounding information which also functions to introduce information to orientate the reader to character, setting and context.

> Once there was a family who lived in South Africa, where there are 25,000,000 blacks and 5,000,000 whites. The whites control the government and they treat the blacks very unfairly. In this family, there was a boy...

More remarkably, the orientation is achieved by means of the construction of a subtle complex representation in the reader's mind. Narration is at two levels of information: the explicitly given and the subtly implied. The reader is cued to do more than comprehend literally. One can, in fact, infer that the story is re-told, that it concerns racism and apartheid, and that the

family does not exist any more because something must have happened to them. The non-literal subtle reading is produced through a number of devices: the choice of past tense to indicate aspect, the use of numbers with a large difference to emphasise the political disparity between the ruling minority and the poorly treated majority, and the specific naming of South Africa to exploit readers' knowledge of the world on issues of racism, apartheid and political dissatisfaction. These illustrate not so much the knowing of specific items of information; rather the possibilities of composing from conceptual knowledge which are open to writers of this level in the choices they are able to make. The opening paragraph is not the only illustrative evidence we have of Jonathan's confident integration of referential and backgrounding information into the storyline. There are, throughout the composition, other fine examples.

- By this level, children's construction of narrative pace shows growing awareness of how it can serve a range of functions. Choosing to make varied syntactic choices and subordination and coordination of idea units, Jonathan builds a growing awareness of the situation, context and character, thereby impelling his reader through the narrative. One cogent example is:

> When Ali's two brothers got old enough, they went to a mine too, but this mine was built with a material that was highly flamable - if there was a fire, it spread very quickly. The miners told the mine owners that it was dangerous, but they payed no heed because keeping the miners as it was would be much cheaper. So as the miners had foretold the mine set on fire and 500 miners were killed, - including Ali's two brothers.

Jonathan gives his reader a sense of story continuity and consistency at all the various parts and levels of structure. They are competently achieved through simple but very effective choices at the word, phrase, clause and text levels. Some fine examples of consistency achieved along both dimensions of story meaning and textual integratedness are "they went to the mine too," "but they payed no heed", "so as the miners had foretold", and "including Ali's two brothers." Indeed, his turn of phrases coupled with effective subordination and coordination and apt introduction by the dash altogether create a complete episode within the larger story and induce in his reader growing empathy. This compelling quality to feel is added by Jonathan's choice of perspective as in - "so as the miners foretold". It implies the narrator's acknowledgement of the miners' know-how and expertise being ignored by management and its very sad consequences. All these elements together invite the reader to share the narrator's sympathy.

- Reader-awareness is clearly evident by this level because of the structural choices made that can manipulate reader's response. Jonathan controls the overall narrative structure by beginning with the aforementioned existential observations, and with comments at various points in the narrative flow so that the reader will infer and build meaning as she proceeds. The meaning building is at two levels at least, the struggles and life of Ali, and the controversial nature of politics and government. The following is an

example of how Jonathan creates in his text a kind of blueprint for the reader to identify cues and combine them into different patterns of characterization and plot as the two-fold meaning unfolds.

> Ali's and his father's influence was spreading all over South Africa and the government was angry, they wanted them gone. One day an officer came to the mine. He was looking for Ali and his father. When he found them he said: You're under arrest! He took them to court. They were guilty of trying to overthrow the government and convincing other people to do the same. Their punishment was hanging. On the morning that he was supposed to be hanged, Ali escaped. He was going to rescue his father but it was too late.

By alternating information about what was happening to Ali with what the government did, Jonathan shapes the reader's characterization of Ali and the government of South Africa. He also forms the reader's construct of plot, especially at two of the turning points in this part of the narrative: "they wanted them gone" and "Ali escaped". At both points, the reader is poised in momentary expectancy and incomplete meaning, and is induced to formulate a prediction from personal beliefs and all that is relevant in what has been offered by the story so far. As the reader does this in split seconds, she simultaneously encounters the next bit offered by Jonathan. And, the patterns of plot are negotiated accordingly, and highlighted, as the reader discovers whether her prediction matches Jonathan's story-line or not.

- Evaluation seems to be the dominant function of this narrative. Social values are questioned both implicitly and explicitly. The range of devices used is rather wide. There are narrator's comments, such as

> "The whites control the government and they treat the blacks very unfairly.";
> "but this mine was built with a material that was highly flamable - if there was a fire, it would spread quickly.";
> "After all it was the mine owners fault, wasn't it?";
> "Ali and his family were just a few of the people there.";
> "After that things were more peaceful for Ali, but he still had difficulties."

as well as character's thoughts and actions which "speak" a message, for example

> "While they were working in the gold mines, Ali and his father joined the African National Congress. (A.N.C.) They got lots of people to join the A.N.C.";
> "Ali tried to defend the mourners, he picked up a rock and threw it. It hit a police officer, he reeled back, he was dead.";
> "He killed a man. He was a criminal.";
> "As he died he thought of all the things that had happened to him and he cried. The last words that left his mouth were apartheid will be overthrown."

There is also tacit evaluation at the local level, which involves evaluating characters (the mine owners, the police, the miners, Ali), events (the fire at the mines, the arrest of Ali and his father, the clash between the police and

the mourners at Ali's father's funeral) and setting (the type of government in South Africe, the condition of the mines, the circumstances of the arrest and again at Ali's father's funeral), and evaluation at the global level. The latter is evident in the world-view implied in the choice of role in which the protagonist is cast. Ali is consistently presented in the role of patient or object of action. This affects the reader's perception of the world in which the protagonist lives: a world of victims and persecutors, struggle, pain and loss suffered owing to political and racial discrimination.

Through all of the above, and more, Jonathan has composed on the basis of his understanding of storying and all its possible functions, of his knowledge of the world, and of his personal ethical and moral principles to create a story that reaches towards that which is literature. "Alimayu" is not just a comprehensible, coherent and integrated story. It is also a story that structures and modifies its reader's personal world view and opinions.

3.0 IMPLICATIONS OF CHILDREN'S DEVELOPMENT AS STORY-WRITERS THROUGH TEXT ANALYSIS

At this point we want to ask: What should we expect of a theory of writing development that is based on understanding children's written compositions? What should it help us to do as teachers of writing and of children?

First, our study of children's compositions aims to understand what children aged 6-12 are capable of knowing and producing. This in itself will argue that a theory of writing development should help us to look at a piece in a new way: recognising explicitly the complex elements and their relations that any composition implies; explicitly recognising also what count as achievements of child-language and of the child's theory of composition. Often the achievements are better obtained from an oral rendering of a child's text than from a silent reading.

Second, our process of analysis is ethnographic in perspective. To search for patterned choices and their warrant involves reading each piece positively, discovering an array of features that together contribute to its achievement, and offering detailed evidence of insight, understanding and thought. Even the most elementary writing reveals insights and hypotheses of meaning composing and text production. So we are attempting to educate ourselves to engage in intelligent reading of children's compositions to learn about children's developing hypotheses and concepts of writing.

Third, we ask: Which of these features represent points of development? How can we read these achievements as signs of progress from more elementary to more complex knowing by the child? The answers we offer are necessarily tentative, especially at this point in time. Nevertheless, the identification of characteristics of many children's compositions that emerge from patterned decisions within each piece cumulatively suggest points of development. They also provide a deeper understanding of existing theoretical descriptions of the challenges children encounter when they attempt more and more complex ways of composing and shaping experience and knowledge into meaningful linguistic written representations.

Finally, all of the above are suggestive for teachers of writing and children. Our methods have proposed a means of defining and identifying the choices children can make and, in addition, have indicated the functions such choices serve in terms of what the compositions communicate and what content or rhetorical goals they meet. It is almost superfluous to point out that writing is not a unitary simple construct. Through the three cases, this report has been able to illustrate only some of the complex constructs of

language use and meaning-constructing in the process of learning to write and writing. Those that have been identified are:

1. children's growing control of a symbolization system as they move from oral to written discourse.

2. their emerging ideational and textual structure and the purposes of their narratives.

3. their growing awareness of possibilities for purposeful and strategic choices to construct patterns of time, space, characterization, plot, context, and narrator's role, among others, within the possible worlds of narrative.

4. their notions of integration of narrative elements, and equally integration of features of discourse with features of meaning through the referential and cohesive systems which are themselves being developed.

But, most significantly, this report of our analyses of children's written narrative compositions is a statement about what children must know and about what they progressively gain from learning how to structure and represent meaning through and with a signing system, and from discovering how to do it in complex ways that will achieve and manipulate complex goals so as to construct patterned meaning. In sum, the benefits that accrue from engagement in writing are developing systems and principles of rationality, mental models of alternative possibilities of representation, and the nature, scope, purposes and contexts of their use. In consequence, writing develops the literate mind.

4.0 THE CONTEXTS AND CONDITIONS FOR THE DEVELOPMENT OF WRITING

Among other issues that can be reported, this section of the report of the writing study will concentrate on examining the process of learning to write in three grades: SK, Grade 2 and Grade 4, the variation in writing instruction and experiences across grade levels in four school settings. More specifically, it sets out to understand the *contexts for learning to write* since these are the years during which children begin to learn the specialized demands of writing as well as its possibilities and potential as they move from modes of communication and discourse which are predominantly oral to those which include the written as well. These are also the years during which children begin to explore and undertake more demanding writing tasks, moving from initial motor skills to the intricacies of composing in writing. Moreover, what and how they learn to write during these years will in some ways influence their development of thinking skills that empower them to learn from books and people throughout their school years.

4.1 Process Data Collection Procedures

Although children's writing development is one of the issues on which this three-year longitudinal study concentrated, the participating schools are not in any way specially selected to examine the learning and teaching of writing. As a result they illustrate the "real, authentic" city schools rather than what is "typical" of highly selective writing-centred schools.

The data reported in this part of the report were collected by four field researchers. Each of the field researchers made approximately twelve half-day observations in one classroom over a period of six months; beginning in January 1986 to June 1986. All the

half-day observations were specially scheduled to coincide with a writing period as defined by the teacher on his/her time-table. In some classrooms, no particular period was allotted specifically to writing. Instead, a considerable block of time was assigned to independent activities, during which the child was expected to engage in assignments involving reading and writing. Where this was the case the independent activities time was considered an equivalent of the writing period, and thereby chosen for detailed observation by the field researcher. Defined in this way 93 out of 96 observations made in grades 2 and 4 occurred during writing periods.

During an observation, a "project child" is monitored in two ways. One is with the aid of a radio microphone which the child wears. Consequently, all his/her oral interactions throughout the half-day are recorded on cassette-tapes. Secondly, the field researcher made a detailed qualitative observational record of the child's behavior and participation in the opportunities for learning throughout the half-day, and also noted, whenever possible, information pertaining to the general classroom contexts. The audio data which contain writing conferences are transcribed, whilst the field notes are edited and coded at three levels for all observations pertaining to writing. They are the *period level* which comprises four fields, the *activity level* which comprises seven fields, and the *routine level* which also has seven fields.

4.2 Quantitative Account of The Characteristics of Writing Periods In Grades Two and Four In Four Schools

4.2.1 Procedures of Analysis of Observational Data

To address the issues as set out in the first part of the paper, the coded data of 93 observations were processed using the WATFILE program for two main analysis purposes. In one set of analyses, presented in Table 2, Figure 1.1 and Figure 1.2, the aim is to understand writing contexts expressed as the kinds of writing activities provided for children to complete and their relative average duration, which in turn permit description of general emphases acrosss grades and school settings. In the second set of analyses, presented in Table 3, Figure 2.1 and Figure 2.2, the data coded at the routine level allowed us to explore how these general emphases worked themselves out in the cumulative experience of children in three contrasting writing activities ie exercise, creative and informational. We hope the latter set of analyses would reveal what writing children do and what children do when writing.

The first step in the analysis was to group the activities observed in writing periods into a number of superordinate categories. The categories thus constructed were:

1. Printing: practising calligraphy
2. Worksheets: including the completion of exercises from the blackboard, workbook or ditto-sheet
3. Journal
4. Creative: stories and personal experience writing
5. Informational: this category contained mainly writing carried out in relation to projects
6. Undifferentiated: writing that could not easily be assigned to one of the preceding categories

7. Writing-Related: activities such as reading in preparation for writing

8. Conferencing: either with the teacher or with a peer

9. Other: all activities not assignable to one of the preceding categories

A similar grouping into superordinate categories was carried out on the routines of which each activity was constituted. At this level, the following superordinate categories were distinguished:

1. Planning

2. Writing

3. Revising

4. Consulting with teacher or peer

5. Referring to dictionary or referencebook

6. Copying from blackboard or book

7. Task-Related Talk

8. Off-Task Talk

9. Other, which included all behaviours not included in the preceding categories

To reiterate, using the WATFILE program, codings of all 93 observations were then analysed to produce tables of the total amount of time spent on each routine within each writing activity at each grade level in each of the four schools. Because of the differing lengths of the writing periods on different occasions and because the number of writing periods observed differed from one classroom to another, these values were then converted to average durations for each classroom and distributions computed as percentages of total time available. The results of these analyses will be discussed in the following paragraphs.

A second strand of data came from the sustained ethnographic texts of the 93 observations. These texts are labelled ET (ethnographic files) and EN ethnographic notes), and they constitute a subset of the field researchers' qualitative data with respect to the selected children. The case study procedure served the purpose of tracing patterns of experience and growth from the point of view of the child. Each child is given a special file which contains classroom observations, biographical data, assessment data and photocopies of all writing done by the child during any particular observation.

For the purposes of this section of the report, data from case studies were synthesized to address the nature of writing instruction that was given in the two grades across the four school settings. Instruction analysed from the perspective of writing process provided the first synthesis. Writing process was sub-categorised as teacher's instruction about writing in general, oral preparation/discussion, planning, adult/peer conferencing, revision, story sharing and display of works. Continuity of activities is the other perspective for the second synthesis. It is defined as teacher's schedule, patterns of

interaction which interfere with writing, access to supplies, choice of topics, development of topic resources, language form, types of writing, and correction/feedback. The results of these syntheses from two perspectives provided a series of portraits on the teaching of writing in each grade in the four school settings.

First, however, a number of important caveats must be entered. The most important of these is a recognition of the limited size of the data-base. Although a total of 93 observations was coded, the number from each classroom was quite small: 12 in most cases, but only 10 in one second grade classroom. When the number of possible types of activity is taken into account, it becomes apparent that the figures for any particular category could be derived from a single observation. The actual numerical values, therefore, must be treated as very tentative. Nevertheless, the fact that distributions are quite similar from classroom to classroom suggests that the proportion of time spent on the different activities and routines is relatively constant across the classes at each grade level.

Furthermore, given the relative infrequency of the observations (approximately two in each classroom in any three week period), no claim can be made about the non-occurrence of categories that were not observed. The fact that no 'Informational' writing was observed in a particular classroom, for example, does not mean that no such writing occurred, but only that it was not seen to occur in the 12 writing periods that were actually observed over the 36 weeks during which the observations were made.

Finally, comparison of the descriptive notes shows that what actually occurred during an activity or routine coded in a particular way varied somewhat from classroom to classroom, depending on how writing was defined by the various teachers. For example, in Grade 4 of School C, a substantial amount of personal experience and story writing was carried out during time that was scheduled for 'Journal-Writing'. In the other Grade 4 classrooms, by contrast, Journal-Writing did not occur; in these classrooms, continuous writing usually took the form of stories or accounts of personal experience and was coded as 'Creative'. Since the two categories overlap considerably, they were subsequently combined to form the superordinate category of 'Creative' writing.

4.2.2 Results and Discussion

The results of the analyses of writing periods are contained in Tables 1, 2 and 3 and in Figures 1.1, 1.2, 2.1 and 2.2. Table 1 summarises the number and duration of the writing periods observed in each classroom. As can be seen, the total amount of time devoted to writing ranged from 435.3 to 819.9 minutes. However, these figures are potentially misleading, since not all classroom observations included a writing period. In order to take this into account, the average duration of those writing periods that were observed was calculated for each classroom and it is these values that are given in the final column of Table 1. They range from 36.3 to 74.5 minutes.

[Insert Table 1 about here]

Table 2 presents the distribution of the total time in writing periods in each classroom over the nine superordinate categories of activity. As in Table 1, mean values are presented in order to take account of the varying number of writing periods observed in different classrooms. The values in Table 2 are therefore the mean number of minutes devoted to each activity in an 'average' writing period. Figures 1.1 and 1.2 present the same information in the form of bar charts. In these figures, the proportion of a writing period spent on each activity (expressed as a percentage) is shown first for all classes combined and then for each class separately.

[Insert Table 2 and Figures 1.1 and 1.2 about here]

In Table 3, the results of examining the distribution of routines across three types of writing are presented. The actual amounts of time devoted to each of these types of writing in an average writing period in each class are shown in the final column. In the body of the table the values are the proportions of the total time devoted to a particular type of writing. For example, in Grade 2 at School E, 4.2 minutes on average was devoted to Writing Exercises and of these 4.2 minutes, 16.3% was spent writing, 2.3% revising and so on. Not all routines are included in this table; those that are shown, therefore, do not sum to 100%. However, the proportion of time spent on other routines can be calculated as 100% less the sum of all the values presented. Figures 2.1 and 2.2 present the same information in the form of bar charts at each grade level for all schools combined.

[Insert Table 3 and Figures 2.1 and 2.2 about here]

In commenting on these data, the first point to note is the substantial degree of similarity between the majority of classrooms, both in the average duration of a writing period and in the distribution of time within it. Since the classrooms in question are all within the jurisdiction of the same Board of Education, this is to be expected and so can be read as indirect evidence of the reliability of the results. However, there is also evidence of differences and it is these that will be considered in the following paragraphs, first in terms of differences between grades and then in terms of differences between individual classrooms at each grade level.

First, the length of the average writing period. Although the distributions overlap, it can be seen that the average duration of a writing period was slightly longer in Grade 2 (60.5 mins.) than in Grade 4 (53.4 mins.). Interestingly, the rank order of schools is quite similar at the two grade levels. The main exception is Grade 4 at School B (B4), where the average writing period was less than half as long as the average period in C2, the longest of all those observed.

When the activities that made up an average writing period are examined (Table 2), it can be seen that the distribution of time across the different writing activities changed from Grade 2 to Grade 4. The total amount of time devoted to Writing Exercises (Printing and Worksheets) decreased from Grade 2 to Grade 4, with no Printing at all being observed in the Grade 4 writing periods; on the other hand, writing that could not be differentiated according to category occurred only in one classroom at Grade 2, but by Grade 4 had come to account for a measurable proportion of time in three of the four classrooms.

Contrary to expectation, Informational writing appears to have occupied less time in Grade 4 classrooms than it did in Grade 2. However, this may be because projects, from which most informational writing arises, were carried out in other time-table periods. Writing-Related activities, on the other hand, more than doubled in duration from Grade 2 to Grade 4, though there was substantial variation between classrooms in the time devoted to this activity at each grade level.

Conferences also come to occupy a larger proportion of time in Grade 4, although again with considerable variation between classrooms. (However, as noted in the preceding section, these figures may be biased by the reluctance of some teachers to engage in conferencing with the child under observation.)

The greatest difference between the two grade levels, however, and between the different classrooms at each grade level, is in the time given to Creative writing (Journal and Creative). Overall, twice as much time was spent on this activity in Grade 2 as in Grade 4. When all activities involving sustained writing are combined (Journal,

Creative, Informational and Undifferentiated), this difference is even more marked: 39.2 minutes in Grade 2 compared with 20.5 in Grade 4. One possible explanation for this between-grade difference is that younger children write much more slowly and therefore require more time to complete a text of a given length. They also tend to draw a picture as the first step in writing. However, this cannot be the only explanation, as two of the grade 2 classes actually spent less time on sustained writing than all but one of the Grade 4 classes. A more complete explanation, therefore, would seem to be that teachers vary in the importance that they give to encouraging children to engage in sustained writing and that, where this activity is valued at the Grade 2 level, ample time is allowed for it to occur. A further source of variation between classes is to be found in the amount of time spent on activities not directly associated with writing ('Other'). This varies from 3.1 minutes in B2 to 37.2 minutes in E2.

These differences are brought out even more clearly when the distribution of time across the different activities is considered as a proportion of total time in the writing period (Figures 2.1 and 2.2). In Grade 2, the reason for the small amount of time spent on sustained writing may be either the greater emphasis placed on writing exercises (29.1%), as in the case of L2, or because of the very high proportion of time spent on non-writing activities (59.1%), as in the case of E2. By contrast, in the two Grade 2 classes in which sustained writing was emphasized, this was achieved in the case of C2 by giving little time to writing exercises (2.3%), and in the case of B2 by minimizing the time spent on other, non-writing, activities (5.5%). In Grade 4, only B4 stands out as being markedly different in the proportional allocation of time to the various activities. In this classroom, not only is the proportion of time spent on non-writing activities substantially greater (57.5%) and that on informational writing much less (0%) than average, but the average length of a writing period is also significantly shorter. It would appear, therefore, that, comparatively speaking, this teacher did not attach as much importance to writing as the other teachers who were observed.

Despite these differences, there were also certain commonalities that emerged across all the classrooms with respect to the routines in which the children engaged, whatever the type of writing activity. First, at both grade levels, little use was made of dictionaries or reference books whilst writing; planning, too, occupied a very small proportion of the time, except, surprisingly, in relation to writing exercises in one classroom (C4). Second, despite the variation in the proportion of time devoted to different types of writing activity, at both grade levels the proportion of time spent actually writing was approximately 30% across all types of writing. At both grade levels, too, the greatest proportion of time spent actually writing was when the writer was engaged in creative writing. Finally, at both grade levels, a substantially greater proportion of time was spent in Off-Task Talk than in either Consulting or Task-Related Talk.

4.3 Qualitative Discussion of The Contexts and Conditions For Developing Writing

Watching writers at work, both novices as well as experts, makes it clear that writing is an extremely complex activity, which involves cognitive and communicative processes as well as purely linguistic ones. Not surprisingly, therefore, writers rarely engage in the activity of writing for its own sake, they write, rather, because there is some topic that they wish to develop into a form that they can communicate to some audience. Recent research on writing development suggests that, from the beginning, children need to be encouraged to approach writing in the same way, if they are to achieve mastery of all the processes involved and it is this belief that has motivated the emphasis on 'process writing', to which all of the schools involved in the project subcribe.

We can therefore review the results of the above analyses in the light of the processes involved in writing and of the contexts which support these processes. In an earlier discussion paper, prepared for a series of collaborative meetings in one of the four schools, we included a diagram which identified what we considered to be some of the teacher's major areas of responsibility (see figure 3). These were: 'meanings to communicate', 'the writing environment', and 'audience response'.

[Insert Figure 3 about here]

In highlighting these components, we were drawing attention to the inter-personal dimensions - those aspects of writing that involve the participants in the triangle of communication, either as sender or receiver of a written message or as collaborators in the processes of creating or interpreting a text. In any complete account of the teacher's responsibilities, however, we should have to include an equal emphasis on the intra-personal dimensions: notably not only the characteristics of the learner-writer, but also her/his mentor's competencies in the encouragement and development of a postive attitude to writing, and the facilitation and extension of the mental processes involved in the activity of writing. In practice, of course, these various components are not distinct and independent; intrapersonal resources and strategies of the learner-writer are developed in part through the guidance received in interpersonal situations - which are influenced by the intrapersonal characteristics of the mentor-teacher of writing - and in part as the writer wrestles with the requirements of particular writing tasks in order to meet her or his communicative goals.

Reviewing the evidence from the classroom observations in the light of these proposed necessary components, it is clear that, to varying degrees, all of them are taken into account in the ways in which teachers organize their classrooms. At the same time, however, it has to be reported that they are not always articulated coherently in the experience of individual children, either with respect to particular writing tasks or even over the span of several months.

Rather than comment on the classrooms one by one, however, since that would be unduly repetitive, we shall use the proposed components of a classroom programme that facilitates writing to raise some issues in relation to certain aspects of those programmes that we actually observed over the three years of the project. These can best be put in the form of questions for consideration.

4.3.1 Meanings to Communicate

Are the topics on which children write drawn too exclusively from immediate personal experience? Are the sources of topics to write about sufficiently nourished through reading a wide variety of types of texts, through music, drama and art, and through research conducted both inside and outside the classroom? Is the classroom a community whose members talk about the texts that they are reading and writing, and their relationships if any?

While personal experience provides a rich source of material that can be shaped into texts of various types (first or third person narratives, position statements, reports, journal entries, etc.), and must, either directly or indirectly, contribute to any text that calls for personal commitment on the part of the writer, there are two problems in focussing exclusively on first-hand actual experience. First, such a focus underemphasizes 'intertextuality' - the relationship between the text under construction and all other texts that the writer has encountered, especially those that are related either in topic or tradition. All successful writers have been influenced by other writers, either through unconscious assimilation of structural and/or stylistic attributes of texts

they admire, or through more deliberate attempts to emulate these features in their own writing.

The second problem concerns the construction of meaning in a text. One of the most important attributes of any successful text is that it has a discernible 'point', to which all the component parts contribute. In a story, this is frequently the resolution of the problem or, in a report, the conclusion drawn. Learning to compose - to select and organize content in order to prepare for, and make, the chosen point - ia an aspect of writing with which children need considerable help. Most of our daily experience, however, does not occur in a form in which the 'point' is clearly apparent. Inviting children to write about personal experiences, therefore, where this is understood simply as an injunction to "tell what happened", does not alert them to the need to compose, in this sense of selecting and organising, nor does it offer them guidance in learning how to do so. In fact, this is precisely the charge levelled against 'personal experience writing' in Australia by Martin, Christie and Rothery (Christie 1987). On the other hand, the need to find a point and to develop text-making strategies for making the point apparent are more easily appreciated by novice writers, particularly if other writers' ways of solving these problems are drawn to their attention in what they read. One possibility for helping children to focus explicitly on this aspect of composing that might be considered is the posing of certain writing tasks as 'problems' to be solved, such as starting with a denouement and then constructing a story to which that would be an appropriate ending. In one classroom where we saw this in action, it appeared to be very effective.

What we have observed is that personal experience writing, particularly children's, utilises a given and familiar organizer i.e. the sequence of events in which the writer took part or observed, such as the typical chronological account of morning to evening events. The plot, characters and even, at times, the commentary are mundane and routinized. These are the result of children relying to a great extent on the "and then", or memory retrieval, strategies rather than the constructive strategies of meaning composing. The foregoing discussion highlights the fact that if, throughout the elementary years, a large proportion of the writing opportunities provided are those of the "personal experience/telling what happened" category - whether they are in the form of journals, narratives, or even theme-related and informational writing - then we have shortchanged our children. Children will be less successful as writers if there is also no opportunity to talk about texts, which includes why authors write the way they write, amongst other discussion topics. This we believe leads to establishing an important link between reading and writing, i.e. explicit attention is given to intertextuality both with regards to subject matter and to writing styles and traditions. In the worst case, children acquire a limited notion of the demands of writing as well as failing to develop a repertoire of cognitive processes essential for writing tasks which cannot be met by a reliance on "telling what happened" and "and then" strategies. Entrenchment in using the structure of everyday experiences in writing tends to produce texts which are qualitatively uninteresting. But more importantly, it results in a lack of expertise in composing. The development of cognitive processes involved in composing by drawing upon both textual and experiential knowledge systems can begin in the early elementary years. It is necessary to give attention to this, if we are concerned with the development of minds through writing.

4.3.2 The Writing Environment

Is the organization of time such that individual children have the opportunity to engage in sustained writing, and in the associated processes of goal-setting, planning and revising? Does the classroom contain a rich set of resources, particularly books, on which to draw to help them in their writing? Is writing linked with other activities in the

classroom, such as drama, scientific observation, and so on, so that it becomes a natural complement to them? Does the talk in which children engage while writing, with teacher and with peers, facilitate their writing, or does it act as a distraction?

Despite the considerable amount of time allocated to the writing period, in many of the classrooms we observed, the proportion of time devoted to sustained writing and the supportive activities that surround it was barely one third of the time available and, within these activities, the proportion of time actually spent writing was again no more than one third. It must be asked again whether sustained writing is being given a high enough priority. By sustained writing we do not mean just a continuous stretch of time per day but, rather, whether writing is integrated or complementary to a unit of study and, therefore, whether the emerging writing comprises of texts of various forms and purposes, which are the different phases of writing-to-learn such as jot notes, list of questions, drafts, logs or tracking sheets, diagrammatic models, webs etc. In addition, children, like adults, should be given realistic time frames within which to complete a piece of writing, allowing time for planning and revising. However, deadlines are an important feature of sustained writing because, without them, children very quickly acquire the habit of not bringing their writing to completion. This we have observed to happen with several of the 72 children, whose writing folders consist of beginnings and false starts of writing and, at best, a couple of first drafts. At the same time, providing children with a fixed amount of time per day to write is not sufficient. We have observed, in one Grade Two classroom, that many groups of children wrote only one or two sentences, if any. The "writing periods" of twenty minutes or so were spent in social chit-chat by the majority.

Similar questions can also be asked about the proportion of time devoted to consulting and to task-related talk, as compared to the proportion devoted to off-task talk. Whilst it is desirable that young writers should feel able to talk to others in the course of writing, they need to develop the self-discipline necessary to give full attention to the task, rather than allowing it to be distracted by social chit-chat or other diversionary talk. At the same time there is clearly a need to foster serious talk, both with the teacher and with peers, about the texts that are being composed. For it is through such talk that children can come to acquire the procedural and strategic knowledge and skills for identifying and solving the problems that are encountered in any writing task (Wells 1989). The point being made both about sustained writing and about the role of talk in writing is qualitative and a matter of maintaining a balance.

4.3.3 Audience Response

Who is the audience for children's writing? Does most of what they write receive an appreciative, as well as a constructively evaluative, response from some reader whose opinion is valued?

Awareness has grown during the last decade of the need for a real audience for children's writing, since it is only when the writer has a real audience in mind that he or she can get to grips with the rhetorical demands posed by having to take that audience into account in the selection and organization of the content of the text (Scardamalia and Bereiter, 1985). In practice, it is notoriously difficult to devise a real audience outside the classroom that will provide a genuine response. School nespapers, project displays, and stories intended for children in lower grades are some of the solutions that teachers have found to this problem in classrooms we have observed. Judging from the success that all these types of events have in contributing to making writing meaningful and purposeful to children and the interest aroused in their intended audiences, they are solutions that might be considered more widely.

Even within the classroom, however, there can frequently be a real audience in other children as well as in the teacher, if an appropriate attitude of interested critical readership is developed. "Sharing Time" can be an opportunity to develop this type of readership circle, where valuable comment on work in progress is offered and achievement celebrated. The development of a writer-reader circle needs sensitivity and serious attention to what the writer has written in relation to her or his intentions. Where only stereotype questions are asked in a routine manner, the writer will gain little from the experience, as will the respondent. It is probably essential that the teacher take the lead, showing by example the sort of questions and comments that are helpful. (See, for example, the examples quoted in Chang & Wells 1989). Another useful practice is for the writer to talk about the usefulness that certain questions have been to his thinking about his text, especially in the junior grades. The practice of conferencing (See below) can also perform some of the feedback functions expected of an audience. Ideally, of course, at least some texts would be written for audiences outside the classroom and the writer, through conferencing while producing her or his text, would receive guidance on how to take the intended audience into account. Besides devising events for writing which include real audiences, providing writing opportunities to write what Heap (19xx) calls enabling texts is another way to develop audience awareness. This is because enabling texts are texts which enable action, such as operating manuals, games, various types of application forms, schedules, or survey questionaires etc. and therefore, these texts highlight the users and the functions they serve. From our observations, there is very little attention given to the writing of enabling texts in the elementary years, or to ways in which these texts can be a natural part of writing to learn activities.

4.3.4 Encouragement of a Desire to write

Do children feel they have ownership of their writing? Can they find a purpose of their own for writing on each occasion? In what terms do they perceive the challenge presented by particular writing tasks?

A sense of ownership is of central importance in promoting the desire to engage in the struggle that every sustained piece of writing entails. If the writer does not feel a sense of commitment to the task - a determination to achieve goals of his or her own - it is unlikely that it will elicit more than partial involvement. Encouraging children to choose their own topics is an approach that, in principle, seems likely to promote a sense of ownership. But more is involved than simply giving free choice. A writer needs strategies for generating possible topics and, equally, ways of selecting from those generated one that he or she cares about sufficiently to write about well. This is an aspect of writing with which most need considerable help. Some suggestions for this have already been made above in the context of the discussion of writing about personal experience. What is at issue here is not simply the question of how to find a topic; equally important is the setting of goals with respect to the topic that is chosen - a formulation at some level of specificity, of what one wants to achieve in the writing with respect to some particular audience of readers.

This is where the challenge is to be found in writing. Without a goal - a conscious intention to make a point or achieve an effect of some kind - there can be no basis for selecting and organizing the content of what one writes. Neither can there be a basis for deciding how effectively one has done what one set out to do. As Murray (1982) puts it, 'In each piece of writing I se at least one technical problem to be solved. In a way, a piece of writing could be defined as an answer to a problem of craft'. At the same time, as he also emphasizes, both goals and means are revised and clarified in the process of writing: the writer must allow the writing to tell him or her what it means and where it

is leading.

If children appear to lack interest in writing, the reason may be, not that the task is too challenging, but rather that it is not challenging enough. Or, to put it differently, the nature of the challenge may be too diffuse to mobilize the writer's commitment to the task. How to help young writers develop appropriate ways of thinking about writing and acquire effective strategies for engaging in the processes involved is, therefore, a problem to which each teacher needs to give attention.

4.3.5 The Processes Involved in Writing

Are all the processes of writing given appropriate systematic attention by the teacher? Is help given on an individual basis when it is needed?

Although there is not complete agreement about the nature of, and the interrrelationships between, the constituent processes of writing, on the following three points there is agreement. First, writing does not proceed in a simple linear sequence of prewriting, writing and rewriting. Instead, planning/preparing/prewriting (whatever the term that is used), writing, rereading, and further writing/rewriting occur in cyclical patterns, the particular configurations of which vary according to the point reached in the construction of the text and according to the nature of the writing task itself. Second, since there are clear differences between novice and expert writers, we can assume that these patterns also change over time as the writer develops expertise. Finally, in addition to these within-individual variations, there are also substantial differences between individuals in their preferred ways of working. In particular, amongst expert writers, there appear to be major differences between those who prefer to complete a first draft in one forward movement, and then carry out major revisions on the complete draft, and those who prefer to do most of their revising as they go, so that, at any point, the text to date is a possible final draft - apart from the inevitable editing, which is the final stage in either approach. Since both these approaches - and others, too - are felt to be satisfactory by those who practise them, there is at present no basis for arguing that one is superior to another.

There can, thus, be no universal prescriptions on how to write. Nevertheless, on the basis of the data from the observations carried out in this project, it would seem that more attention needs to be given to those writing processes that do not directly involve continuous writing in the sense of what Smith (1981) calls transcription. That is to say, students need to be given help, in particular, with the processes of goal-setting, planning, reviewing and revising (cf. also Bereiter and Scardamalia, 1985.) This is not to underestimate the importance of the processes of transcription: the construction of well-formed sentences, the making of cohesive links between them, the observance of the conventions of spelling and punctuation, and the production of legible and aesthetically pleasing handwriting. However these processes already receive substantial attention, and often at the expense of the cognitively more challenging processes of composition. These latter processes are concerned with the thinking that is involved in the setting of goals, the selection of means for achieving them in the selection and organization of content, and the critical reading required to evaluate the drafts that emerge from the actual writing. However, because they are not directly observable, and thus less easy to describe, they tend to be given insufficient attention by teachers and students alike. Yet it is on development with respect to these processes that the acquisition of expertise as a writer most depends.

Of these more specifically cognitive processes, perhaps the ones that are currently most neglected are the forward-looking processes of goal-setting and planning. For most young writers, there is barely a pause between accepting the injunction to write and

starting to produce what may be the one and only draft. Experts, on the other hand, spend a considerable proportion of the total writing time in a variety of activities such as collecting information, ruminating, trying out ideas for overall structure, generating candidate opening sentences, varying the tone, and so forth, either on paper or in their heads (Britton et al., 1975; Murray, 1982; Smith, 1981). Murray refers to these processes as 'rehearsal'; the resulting jottings, in whatever form, are like the preliminary sketches of the graphic artist, 'devices to catch a possible order that exists in the chaos of the subject' (1982, p.35). Although drawing may perform something of the same function for those who are still very limited in their text-creating abilities, most young writers do not seem to be aware of the necessity of spending time in these preparatory activities, largely because the reasons for doing so are rarely brought to their attention. As our coinvestigations with them have revealed, their idea of writing is of adding one sentence after another until an acceptably long text has been produced - often measured in terms of the number of lines, or even of inches, rather than in terms of the overall coherence and effectiveness of the text. Bereiter and Scardamalia (1985) refer to this as the 'knowledge-telling strategy', and argue that, as it becomes more and more firmly established during the elementary years, it comes to constitute a serious impediment to the development of strategies more adapted to the varied demands of the diffrent types of writing that students need to be able to undertake. Furthermore, in adopting this unreflective strategy of cumulative text-production, they have little opportunity to gain the benefits for learning that can accrue through the use of more intentional, goal-directed strategies of writing (Calkins, 1985). However, if the latter strategies are to be acquired, it is essential that students learn to see writing as an activity that requires the deliberate construction of goals to work towards and the consideration of alternative possible ways of attaining them.

What seems to be required, therefore, is a much clearer recognition of the importance of this aspect of writing and the development of teaching procedures that will help children to develop the appropraite strategies. In some classrooms, various techniques are already being used, such as group brainstorming, class discussion, making lists of potentially useful words and so on. These activities certainly can make a useful contribution to the processes involved in 'rehearsing', but they need to be complemented by other activities by means of which the young writer comes to understand the *reasons* for engaging in preparatory activities and to acquire strategies for doing so that he or she can employ *individually and on his or her own initiative.*

Atwell (1987) suggests the 'mini-lesson' as a way of drawing specific issues such as these to the attention of the whole class or a group within it, and this approach to instruction seems to be successful for many students. However, because students need individually to develop their own strategies according to their preferred ways of working, it is also essential to conduct individual conferences, in which general principles concerning the processes of writing are presented in ways that are contingently responsive to the young writer's current stage of development and personal style. Furthermore, such conferences should not be limited to the editing of already completed drafts, but should take place during the rehearsing and writing phases as well.

About the need for more individual teacher-student conferences there is little disagreement. Even those teachers who rarely engage in conferencing agree that it is a desirable practice. Where there is less agreement, however, is on how to conduct effective conferences and how to organize the classroom schedule to allow sufficient time to meet with every child on a regular basis. With respect to the former question, an answer in general terms can be gleaned by adopting the perspective of the student. From his or her point of view, what is potentially so valuable about the writing

conference is that, in trying to explain what he or she has written or is writing, and how and why, decisions that he or she may have made intuitively and unconsciously can become more conscious so that the basis on which they were made becomes available for incorporation into strategies that are intentionally deployed. Conferencing can thus provide the ideal context for collaborative adult intervention in what Vygotsky (1978) called the learner's 'zone of proximal development' (Wells and Chang, 1989). What each teacher has to learn is how he or she can interact during a conference to maximise the probability of this potential being achieved. This and the discovery of the most satisfactory ways of scheduling activities to allow adequate time for conferencing are clearly the sort of issues that are best tackled through the sort of action research that we have described in other sections of this report.

5.0 IMPLICATIONS OF CONTEXT AND CONDITIONS OF WRITING ON DEVELOPMENT

In the preceding paragraphs, a number of issues have been discussed that were raised both by our quantitative analysis of observations of writing periods at two grade levels in the four schools and also by subsequent coinvestigations with the children and qualitative analyses of observations of writing across the full range of the elementary years. In the light of the recommendation of the Ministry of Education - and also of the Toronto Board of Education in whose jurisdiction these schools are located - that emphasis should be place on the processes of writing as well as on the resulting products, we have asked how far this recommendation is being put into practice. The answer, our data suggest, is that in all classrooms there is an evident concern with at least some of the writing processes; there is also some concern with the inter-personal and material contexts which support these processes. On the other hand, it is equally clear that there is considerable variation in this respect and that, in the majority of classrooms, there are aspects that are not yet receiving sufficient attention.

There seem to be several reasons for this. The first is that teachers vary considerably in the amount of importance that they attach to the activity of writing - in how central they see it to be in children's intellectual development. In terms of the model of literacy that we have developed (Wells, 1987, 1989), some teachers still seem to be operating with a restricted conception of literacy that virtually ignores the practices associated with 'literate thinking', that is to say the critical and constructive engagement with text to empower thinking and feeling. Related to this is the extent to which teachers believe that the every child has the potential to become an effective writer whatever his or her social and ethnolinguistic background. Where teachers believe that ability is largely socially and culturally determined, they may - with good intentions - significantly reduce both the opportunities and the challenges that they present to minority students with the result that these students do indeed fail to demonstrate what they are capable of achieving (Chang and Wells, in press).

The second important factor is the extent of the teacher's own expertise, both as a writer and as a teacher of writing. To be able to intervene effectively in a conference or to present a helpful mini-lesson on some aspect of writing, teachers themselves need to be knowledgeable about the processes involved in writing and about the conditions that are most supportive of these processes. This knowledge can come from three sources: study, observation, and engagement in writing. Unfortunately, little help was given in any of these domains in the initial professional education of most currently serving teachers, and it is only very recently that the situation has begun to improve, either in preservice or in inservice education.

With respect to study, opportunities now exist for serving teachers to learn more about

writing through writing workshops. There are also occasional conference presentations by such researchers as Graves, Giacobbe, and Calkins, and these enthuse some teachers sufficiently to persuade them to embark on more systematic study. For the majority, however, such one-off occasions are perceived as presenting a set of recommendations - or even prescriptions - which they may, or may not, try to follow but, in either case, without having acquired a thorough personal understanding of the basis for the recommendations. There is clearly a need, therefore, for more writing workshops in which writing theory is studied in relation to teachers' own experience as writers and teachers of writing.

Systematic observation of young writers at work provides another valuable mode of learning, particularly if carried out in the teacher's own classroom with the support of somebody with whom to discuss the significance of what is observed. There is no doubt that the understanding thus gained can provide a sound basis for improving the contexts and opportunities for writing and for offering more appropriate assistance to individual students. During the course of the project, several teachers have conducted inquiries of some aspect of writing, involving observations made over time in their own classrooms, and each has testified to the value of what they learned from the experience. (See the section of this report in which the results of these inquiries are presented.) In our opinion, greater efforts should be made to convince teachers of the value of this sort of intentional classroom-based learning and more resources should be given to supporting those teachers who are willing to make the attempt.

The third suggested source of understanding about writing - the actual practice of writing oneself - appears to be relatively rare in most teachers' experience, except insofar as brief notes and reports are called for as part of the performance of the teacher's professional role. Yet the actual practice of writing, whether it be of stories, reviews, poems - or a report of a classroom inquiry - can, particularly when subjected to introspective reflection, lead to insights on the part of the teacher that completely change the nature of the advice that he or she offers to young writers. As with any art or craft, when teachers are self-aware practitioners themselves, they can act as models and guides and not simply as informed but uninvolved instructors.

Most satisfactory of all, of course, is a combination of all three modes of learning, each complementing and extending the others. And this is what we have seen begin to develop in the case of some of the teachers who have embarked on their own classroom inquiries. However, it would no doubt be unrealistic to expect all teachers to become enthusiastic about extending their knowledge in all of these ways, even though all are responsible for students' development as writers. Nevertheless, it might be reasonable to try to ensure that there was one such teacher in each school who could take the lead in acting as a resource and support to other teachers who were keen to learn more. However it is to be hoped that there will be increasing attempts made to encourage *all* teachers to extend their understanding of writing and its development in at least one of the ways suggested above.

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GRADE TWO:

School	# of Obsvs. R2	R3	Total # of Obsvs	Total Duration of R2s	Total Duration of R3s	Average Duration of R2s	Average Duration of R3s	Total Duration All Rs	Average Duration All Rs
E	7	5	12	392.3	364.1	56.04	72.82	756.4	63.03
L	6	6	12	202.4	403.4	33.73	67.23	605.8	50.4
C	4	7	11	344.7	475.2	86.18	67.89	819.9	74.54
B	6	6	12	338.3	324.3	56.38	54.05	662.6	55.22
ALL	23	24	47					2844.7	60.5

GRADE FOUR:

School	# of Obsvs. R2	R3	Total # of Obsvs.	Total Duration of R2s	Total Duration of R 3s	Average Duration of R2s	Average Duration of R3s	Total Duration All Rs	Average Duration All Rs
E	6	6	12	449.7	342.4	75.0	57.1	792.1	66.0
L	6	6	12	198.2	337.6	33.0	56.3	535.8	44.6
C	5	5	10	258.6	440.9	51.7	88.2	699.5	70.0
B	6	6	12	237.0	198.3	39.5	33.1	435.3	36.3
ALL	23	23	46					2462.7	53.4

Table 1: Writing Periods in Grades 2 & 4 in Four Schools: Summary Information

GRADE TWO:

School	Print	Worksheet	Journal	Creative	Informational	Undiffd.	Wrt. Related	Conference	Other	Total
E	3.6	0	5.8	4.5	5.8	0	4.3	1.9	37.2	63.1
L	3.1	11.6	3.2	9.7	0.4	1.7	3.7	3.5	13.5	50.4
C	0	1.7	18.8	24.9	0	0	1.5	3.9	23.6	74.4
B	0	6.7	9.0	22.9	12.0	0	0	1.6	3.1	55.3
ALL	1.7	5.1	9.0	15.3	4.7	0.4	2.9	2.7	19.3	60.6

GRADE FOUR:

School	Print	Worksheet	Journal	Creative	Informational	Undiffd.	Wrt. Related	Conference	Other	Total
E	0	4.2	0	15.1	9.0	2.8	2.6	5.9	20.5	66.1
L	0	3.6	0	13.2	0	5.1	2.2	4.0	16.5	44.6
C	0	3.6	0	14.2	5.4	5.6	17.1	8.2	15.9	70.0
B	0	1.4	3.4	7.3	0	0.9	0.1	2.4	20.9	36.4
All	0	3.2	0.9	12.4	3.5	3.5	6.6	5.0	18.6	53.5

Table 2: Mean Time in Different Activities During Writing Periods in Grades 2 & 4 in Four Schools

GRADE TWO:

School	Activity	Plan	Write	Revise	Consult	Refer	Copy	Task-Reld. Talk	Off-Task Talk	Av. Time
E	Exercise	0	16.3	2.3	2.3	0	0	2.3	0	3.6
	Creative	2.0	18.9	1.7	10.2	3.5	1.2	2.4	14.9	10.3
	Informational	1.4	5.8	3.9	1.9	0	0	3.3	34.5	5.8
L	Exercise	0	29.9	11.9	0.8	0	18.0	0	22.1	14.7
	Creative	0	31.5	4.9	2.1	2.6	0	0.4	35.3	12.9
	Informational	0	60.0	0	0	0	0	0	0	0.4
C	Exercise	0	65.8	0	5.3	0	0	15.8	10.5	1.7
	Creative	0	25.2	8.1	12.2	0.7	0.3	7.8	21.8	43.7
	Informational	0	0	0	0	0	0	0	0	0
B	Exercise	0	0	0	0	0	0	0	0	0
	Creative	0	0	13.4	2.5	0	15.9	3.5	24.6	6.7
	Informational	0	15.2	3.1	1.7	0.7	0	2.4	34.7	12.0
ALL	Exercise	0	22.7	10.3	1.7	0	14.0	2.1	19.1	6.8
	Creative	0.2	35.8	5.4	9.1	1.0	2.0	3.5	24.3	24.3
	Informational	0.5	13.2	3.2	1.7	0.5	0	2.7	33.8	4.7

GRADE FOUR:

School	Activity	Plan	Write	Revise	Consult	Refer	Copy	Task-Reld. Talk	Off-Task Talk	Av. Time
E	Exercise	7.0	27.0	0	3.0	0	2.0	0	7.0	4.2
	Creative	0.6	30.2	6.4	5.6	0	3.5	10.4	14.1	15.1
	Informational	2.0	17.9	1.7	0.9	0.5	0.5	13.4	11.3	9.0
L	Exercise	0	7.0	19.0	2.3	0	62.4	0	2.3	3.6
	Creative	2.1	46.7	5.5	6.5	0	0	1.5	12.6	13.2
	Informational	0	0	0	0	0	0	0	0	0
C	Exercise	11.1	18.1	0	5.6	0	0	5.6	30.6	3.6
	Creative	0	21.5	19.3	13.5	0	0	3.9	19.1	14.2
	Informational	0	39.7	13.1	0	0	0	0	1.8	5.4
B	Exercise	0	41.5	0	0	0	0	0	4.9	1.4
	Creative	0	41.1	2.7	6.2	2.3	0	0.8	13.0	10.7
	Informational	0	0	0	0	0	0	0	0	0
ALL	Exercise	5.2	20.5	5.6	3.1	0	24.5	1.4	11.2	3.2
	Creative	0.7	34.8	8.4	7.8	0.5	1.0	4.5	14.6	13.3
	Informational	1.4	25.2	5.5	0.6	0.3	0.3	8.9	8.1	3.5

Table 3: % Distribution of Routines in Writing Activities in Grades 2 & 4 in Four Schools

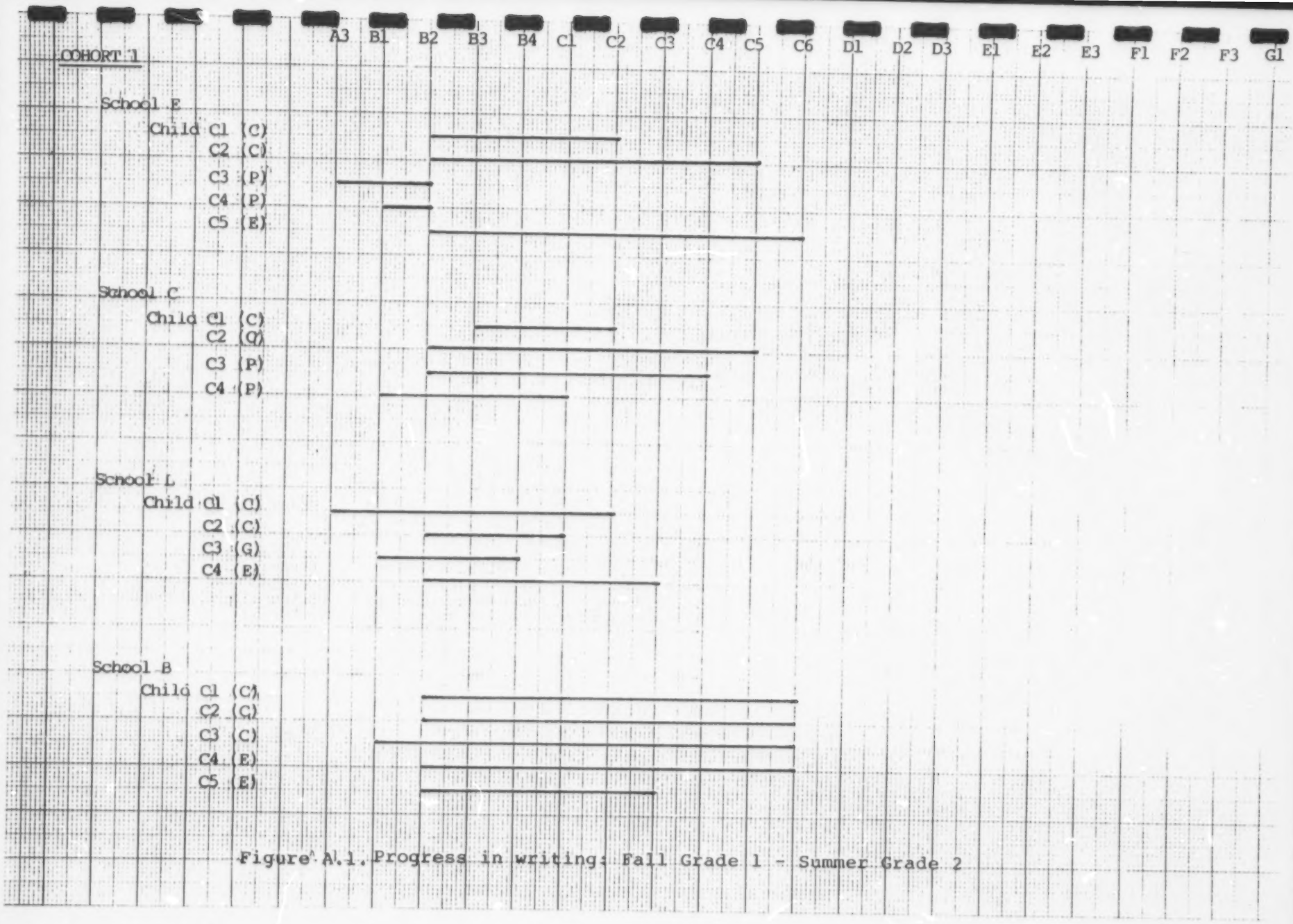


Figure A.1. Progress in writing: Fall Grade 1 - Summer Grade 2

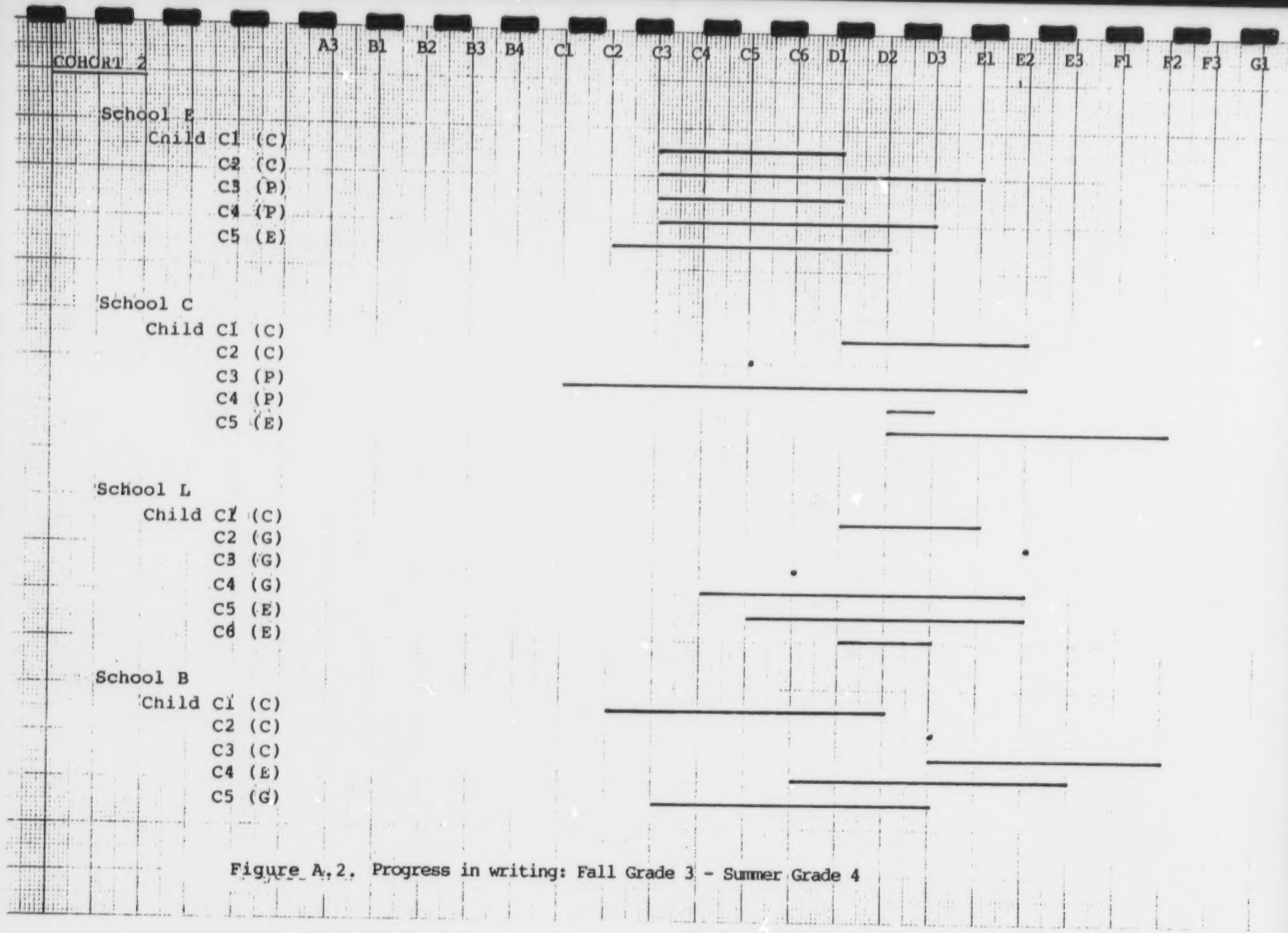


Figure A.2. Progress in writing: Fall Grade 3 - Summer Grade 4

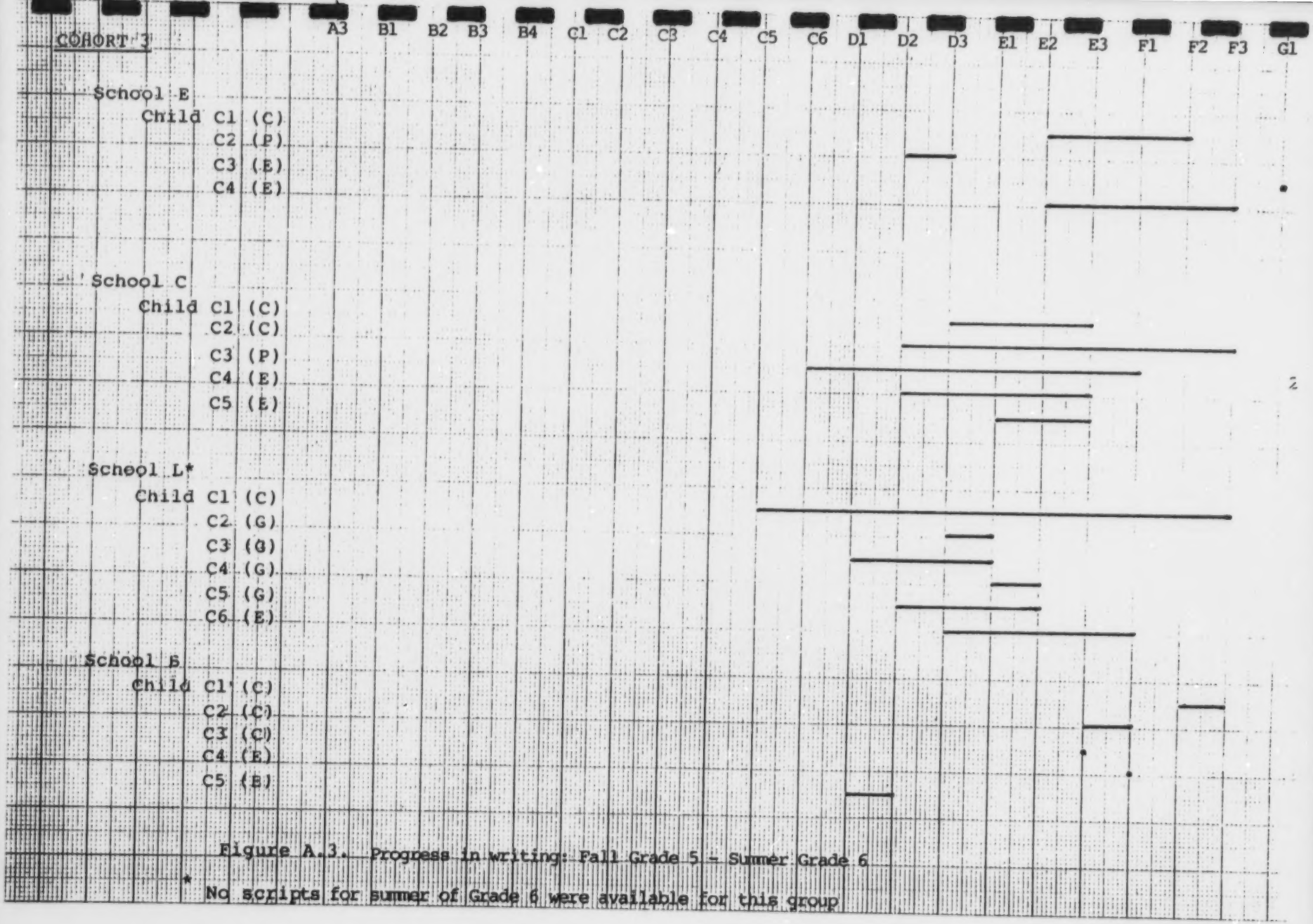


Figure A.3. Progress in writing: Fall Grade 5 - Summer Grade 6

* No scripts for summer of Grade 6 were available for this group

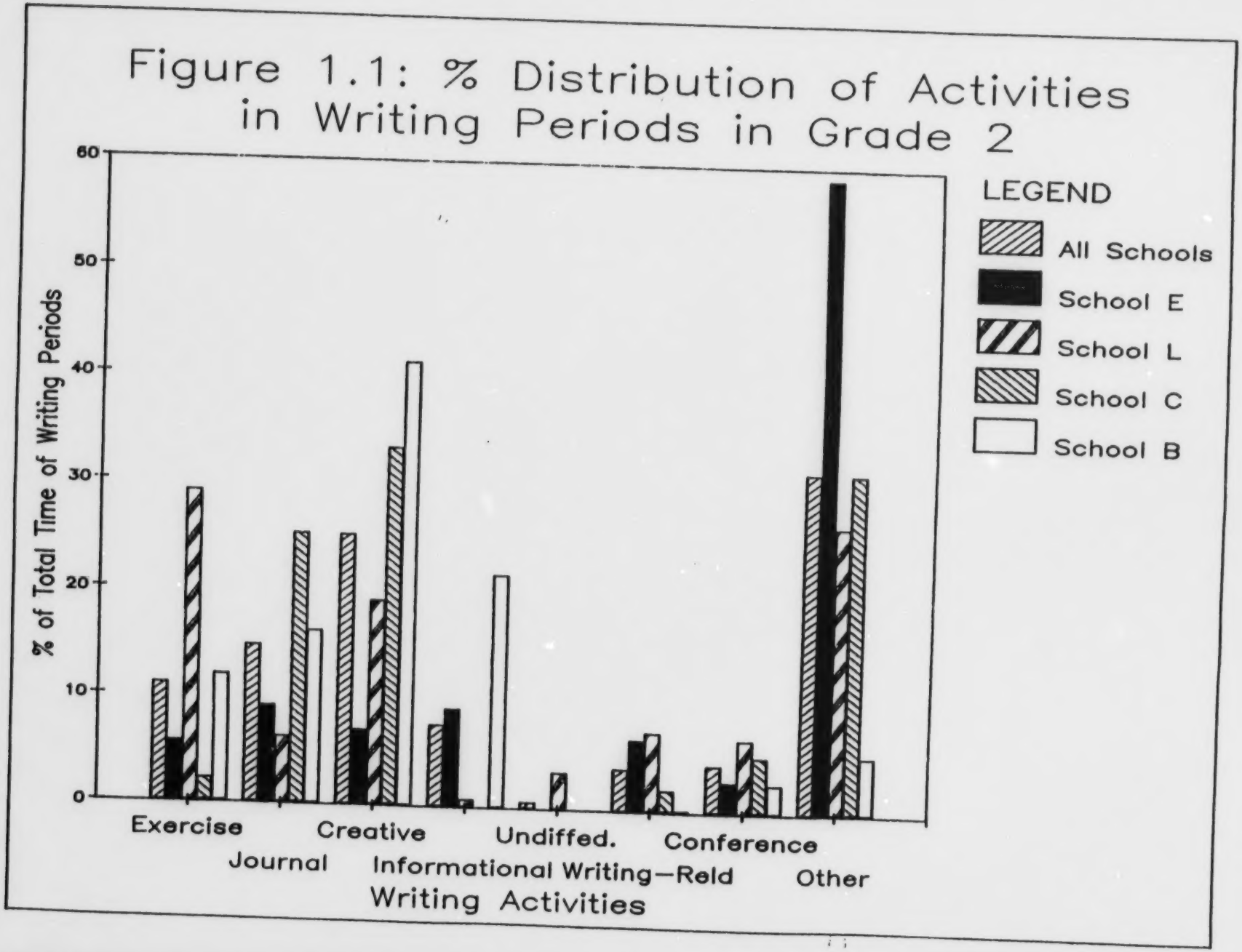


Figure 1.1: % Distribution of Activities in Writing Periods in Grade 2
% of Total Time of Writing Periods
60
50
40
30
20
10
0
LEGEND
All Schools
School E
School L
School C
School B
Exercise
Journal
Creative
Informational Writing—Reid
Undiffed.
Conference
Other
Writing Activities

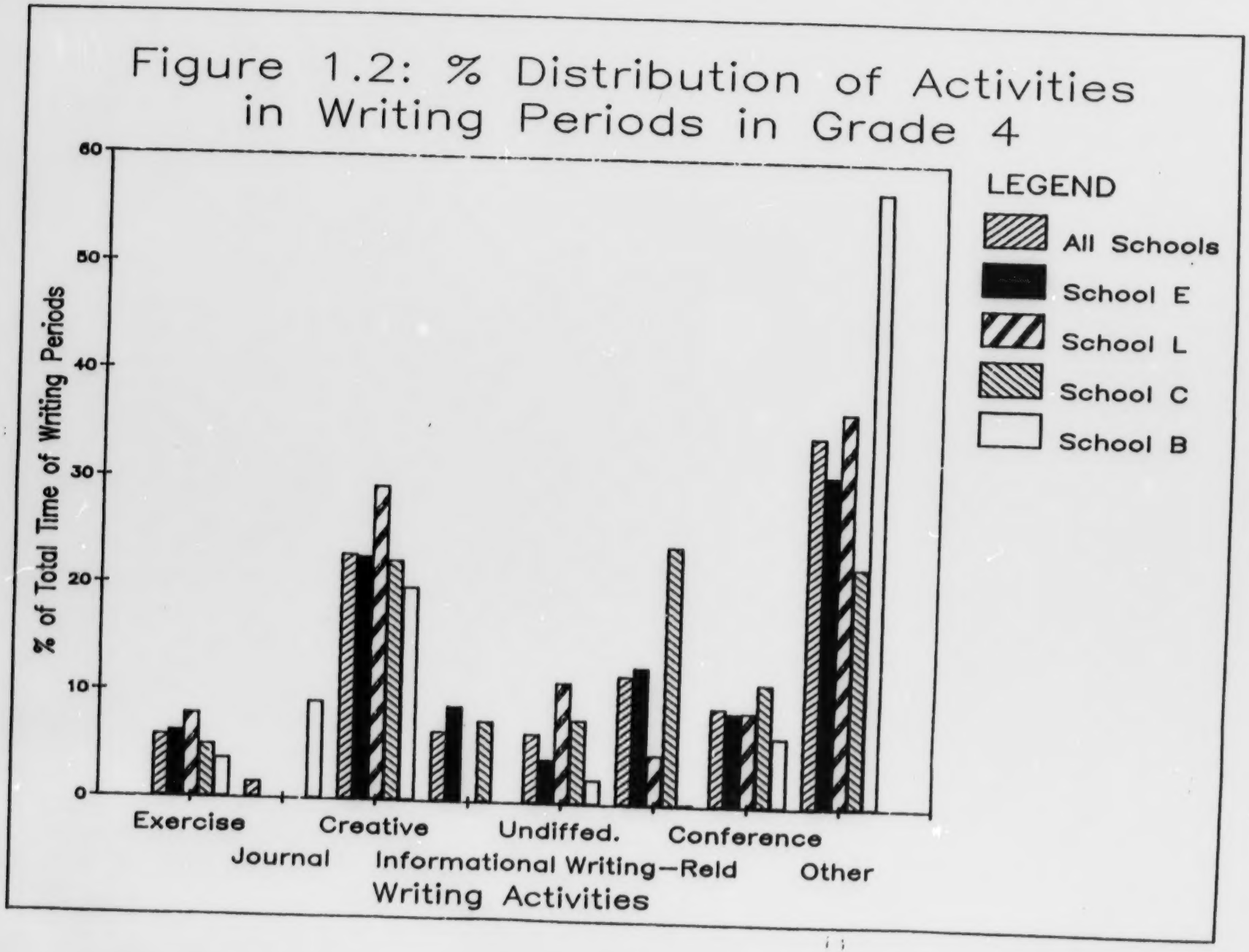
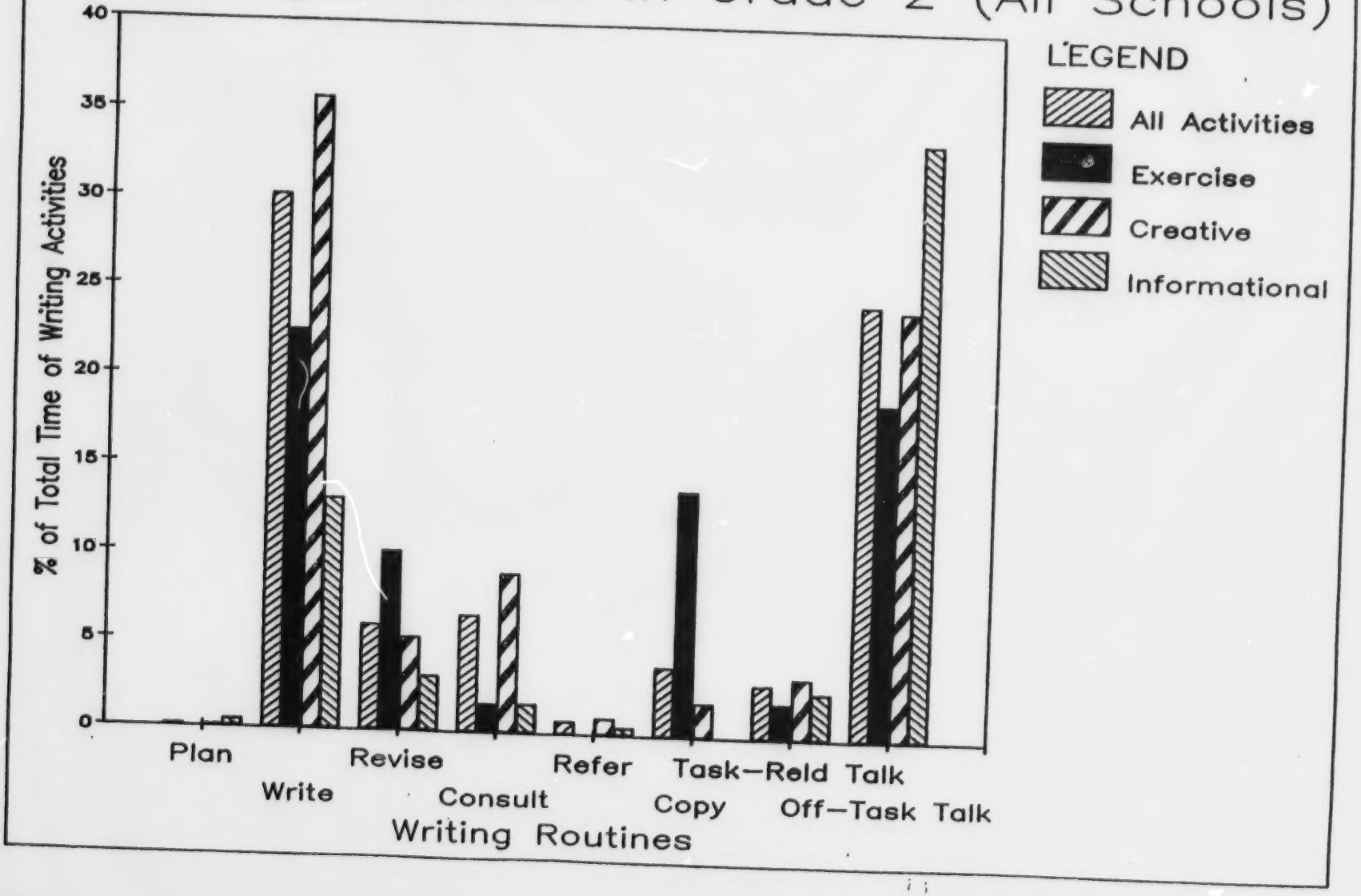


Figure 1.2: % Distribution of Activities in Writing Periods in Grade 4
LEGEND
All Schools
School E
School L
School C
School B
% of Total Time of Writing Periods
60
50
40
30
20
10
0
Exercise
Journal
Creative
Informational Writing—Reid
Undiffed.
Conference
Other
Writing Activities

Figure 2.1: % Distribution of Routines in Writing Activities in Grade 2 (All Schools)



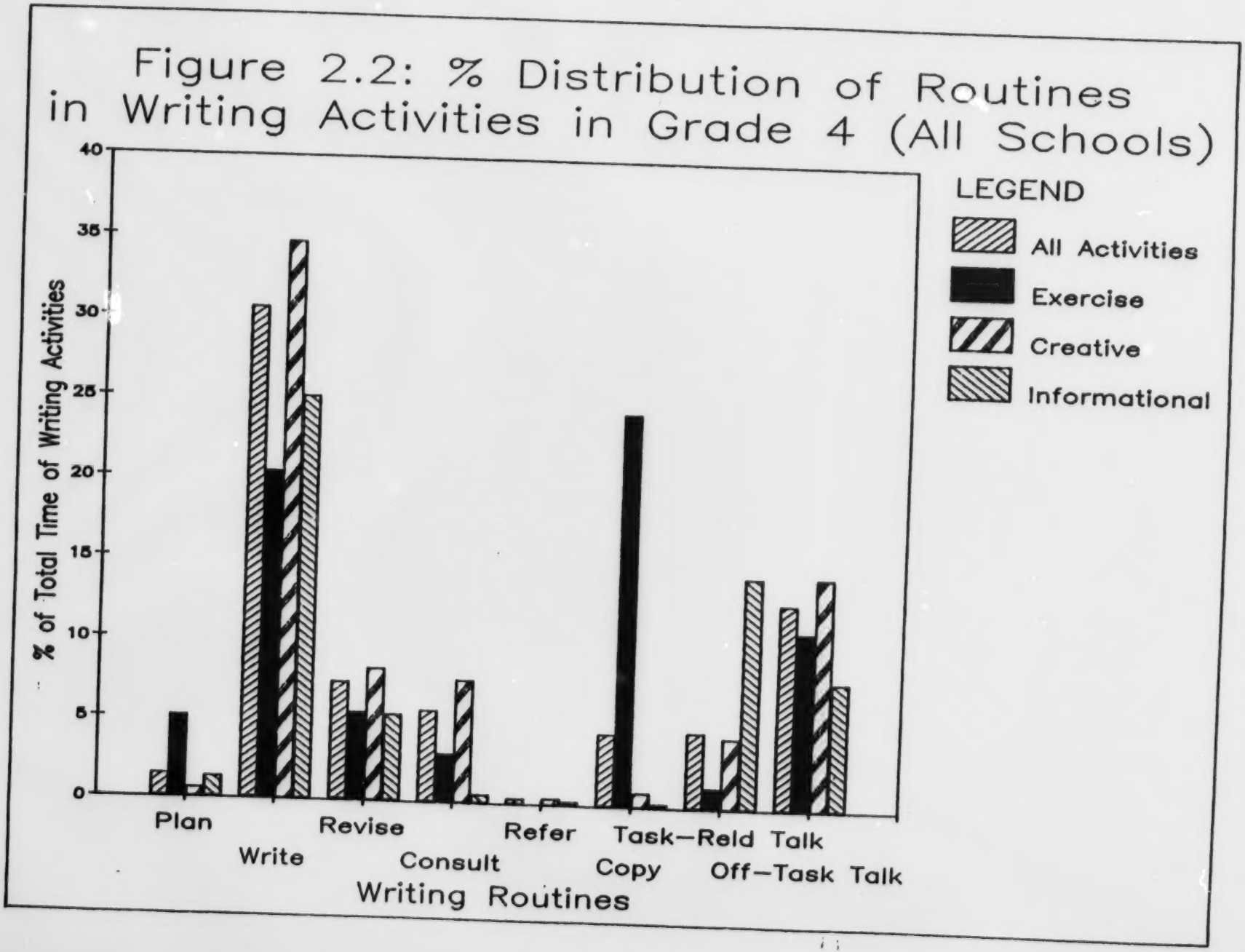
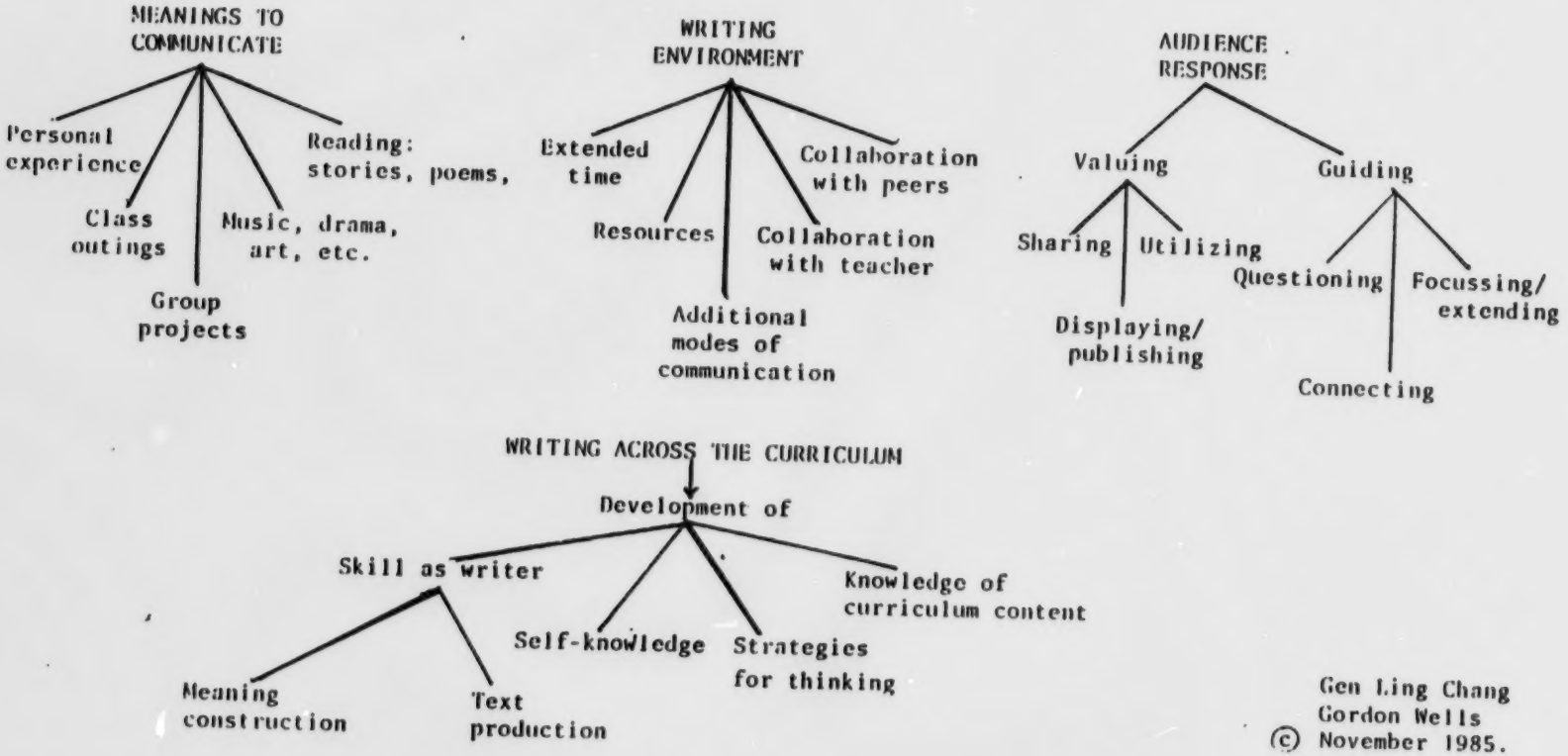


Figure 2.2: % Distribution of Routines in Writing Activities in Grade 4 (All Schools)
LEGEND
All Activities
Exercise
Creative
Informational
% of Total Time of Writing Activities
40
35
30
25
20
15
10
5
0
Plan
Write
Revise
Consult
Refer
Copy
Task-Reld Talk
Off-Task Talk
Writing Routines

WRITING AND LEARNING

1. Why focus on writing? Because writing more than any other aspect of the curriculum:
   a. integrates all the communication skills with thinking in the construction and communication of knowledge;
   b. makes the processes of thinking available for inspection and reflection and therefore amenable to guided development;
   c. encourages ownership by the child and maximises the opportunity for individual response by the teacher.

2. What are the conditions that foster the development of writing? The following is a first attempt to identify some of the major areas of the teacher's responsibility.

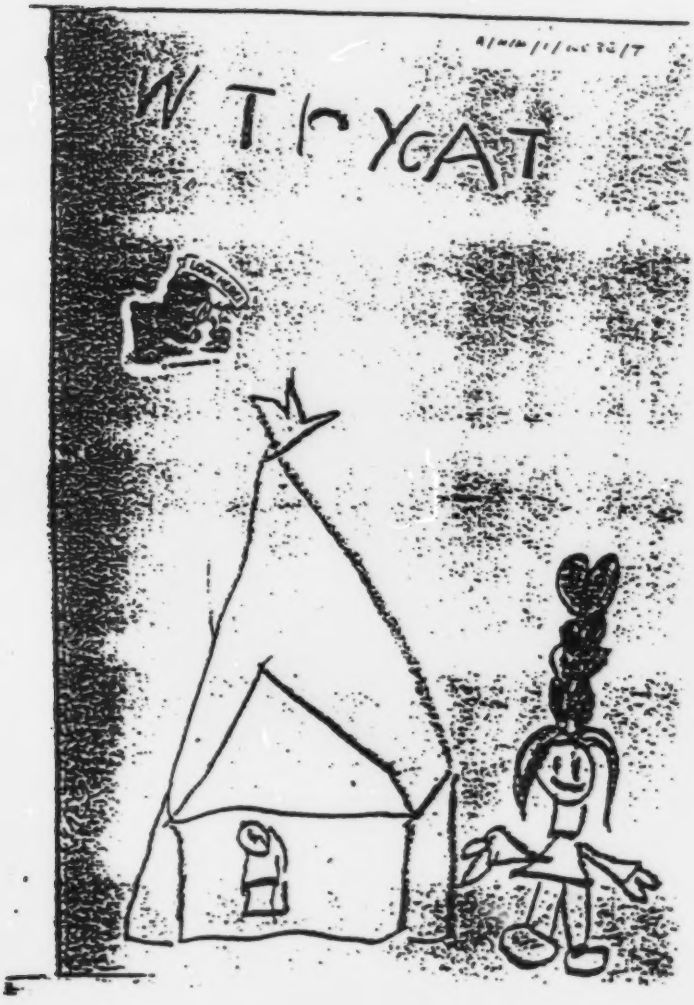


Gen Ling Chang
Gordon Wells
© November 1985.

Figure 3. Handout prepared for Writing Workshop.

APPENDIX 3.1.1

APPENDIX 3.1.2



APPENDIX 3.1.3

Pg1

I GO WIN SWIMMING
HAW BAT YOU
DAOO YOU GO WIN SWIM
MING

Pg2

Pg 1

1 one day girl
2 girl saw a boy
3 he s name is John
4 and he call name
5 is Sandra and Sandra
6 call come in your what
7 to play with me yes
8 yes said John ok my
9 House is ken are your
10 House is ken yes yes
11 yes with House is ken
12 so call boy House is
13 a stare my House
14 is a horte some thing
15 is live in a horte
16 and some time i run

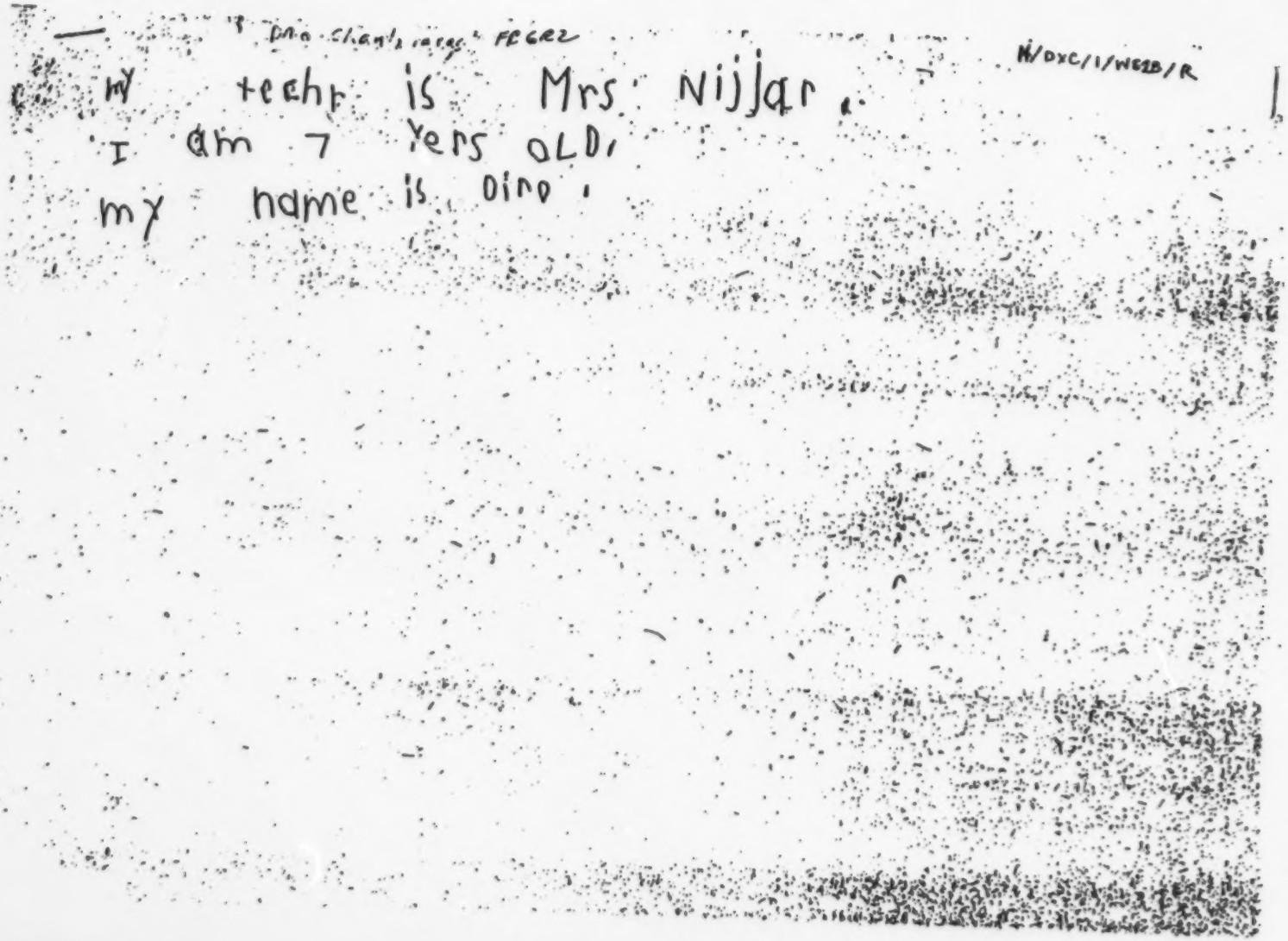
Pg 2

17 the fours and i
18 some time i live some
19 where me to you one
20 to plays now yes
21 we never plays yet
22 we jeast going some
23 thing we are a new
24 friend now lest go
25 and play ok lest go
26 now ok but what
27 we got to play with what
28 do you have a apple
29 yes i dook but do you have
30 to me D yes i do can
31 i have one to plays
yes ye ye ok what

Pg 3.

33 colour you one pink
34 ok the end

APPENDIX 3.1.4



APPENDIX 3.2.1

ones-a-pon a time thar was a boy and a donkey and that donkey was a magi e donkey. And it coulde do anything. Incloudling gating your mother in laae. And it can bring you to pluto wall lates get back to the story. Wan the li.. sid I wish I had a sack of GOLD and it ...pined and the donkey sold hia ...ostrid mouth and the boy said wote did y.. sae donkey and I cant bolsive you toket you datet bolive thars not manf y toking donkeys atround here you know. And he sak wars your power come fronc. It comes frome mi bones and in no time he touk out his Jack nife and ciled hime and touk his bones and had wishes.

The End

Wolfs Away

AWOOOOOOO!!!

It all started an a spoucie nite there wesr stars in the SKi. Only the shineing moon in the darkI was outside taking a walk and that was fou foals from the previos rain. And I was the only wen outside. On the wae I was filing very strang. I dindint know that I was changing in to a WareWolf. I looked

Pg 2 down and he saw mi calf in the poudair I had tow teeth coming down here all over mi bodd.y and than the moon was covord up oy the clouds and I was back to normcl. I CWidle and went to bed. The next day I WOKK up and got drait and got mi books and went for school. At school I W/

Pg 3 paing much stanchon because I capt on thinking about wait hapind last Knite. than the techer asket me a Qwe-shton but Sins I wasent paing stanchon I didint know the Cwashion and w ht aaaaaaaaaa. Than the techer saint me home With a Bondol of Work And the wirst Wis yet too come. When I got bome I stodid feel hard.

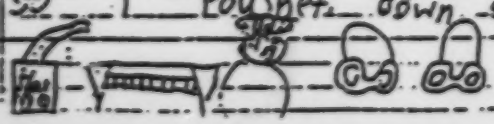
And than it happed

Pg 4 again I changend into a Waer Wolf I looket like a WOLF!!! Than mi father walk in and he said Waits going an in the ir and than he saw me and I saw bim he was a Waer Wolf toe and mi sister and mi brother and mi mother. And than mi mether said you can stay change for tow risen 1 A fool moon. 2 anger.

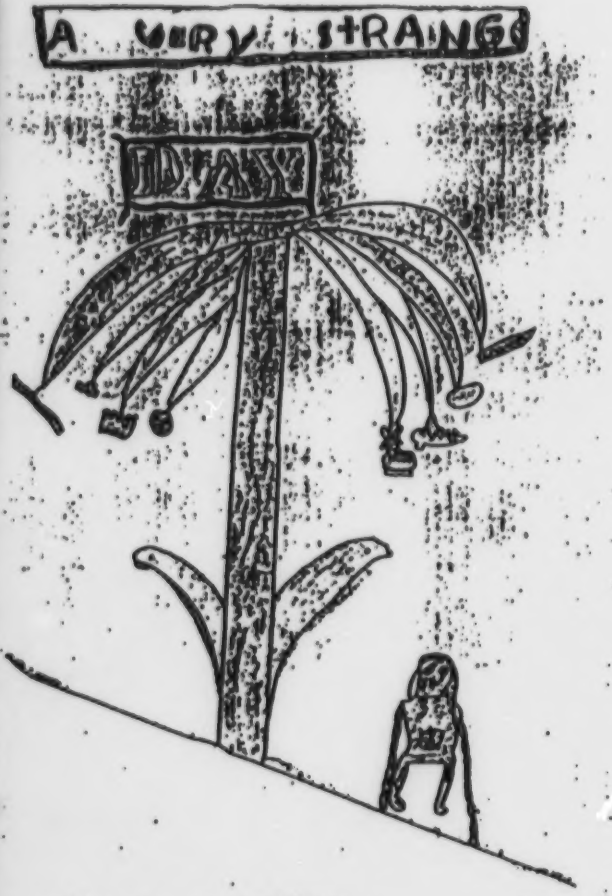
Thes tow things will

It's make you change And
than he told me all
the facts of a wear
wolf. Than we all charged
back into people. Than
I Waint too bed and
I baild too the moon
all knit. The next day
I Weak up and I was
lait for school so I
got drist and I Waik
to school. And Wat I
got too school that
was no school. SO I
Waint back hine.

Pg 2 When I got home
I droped mi books
on the couche and
ran up the stairs and
waint to mi room and
locket the door shute
And waint to sleep. After
tow hours of sleeping I
waik up that was nubby
at home just me! And than
tow burglers bricke in
so I roushet down stairs.



So I got mad and
changed into a wear wolf
and they ran so
fare that they were
never seen again. That
the rest of the fameley
came and said Wait I've
you back for burglers
brake in I saved them
from you. We were saving
so we talked it over and
we all leved happily EVER AFTER
The End.



pg 1

pg 2

Down and down I went. As if I was falling into a bottomless pit.

And then I hit bottom Bang! I had landed in a supernatural Place.

were everyting isn't normall like trees that growing boots. And grass that was maid of paper.

And then a cow talked to me. it said "Hi!" so I said hi back.

pg 3

APPENDIX 3.2.4

"Do you know how to get out of here?" I asked the cow.

The cow said I dont know. "But if theres any one who knows its the lake."

So I went to find the lake. On the way I found a purple Panther.

Pg 4

"Preposterous" I said And then the panther strutted toward me and said hi kid in a coal voice. And then he asked me out for tea.

I said "I'd be happy to have tea with you" So of we went to have tea.

Pg 5

When we got to his to his house I saw how big it was. I was ENORMOUS. It was the biggest house I had ever seen. Then we went in side the house it was painted gold. Then he showed me his vault. I was ENORMOUS.

There were so many riches in it. Then he closed the the vault. And we went to have tea. After tea I went to find the lake. Then I came across a House that walked talked and sang. I asked the house "do you know Where the lake is?" He said "nope" so I kept on walking.

Pg 6

Later I came across.
a Strang Singing Sword.
So I picked it up.
But it flew away.
So I Kept on walking.

Till I found a maze
made mirrors. so I went it
side. And I kept on humping
into the mirrors, finally I
got out in front of
me was the lake..

It Was sosa beautiful. weakly
I acked it "how do I get
out of here" The lake
tipped go through
me. so I did and
found my sefe on
my Street.

Pg 7

This Story has
Just been
COAKED.

Pg 8

c/sort

on 8d

The best Halloween
date was thursday
the 3 Halloween night.
I was out trick or
treating. Patrick must
have made a wrong
turn because I ended
up at a desolate end
of a big mansion stood
infront of me.
The number was
626 there was lots
of noise coming

p8 1

2.

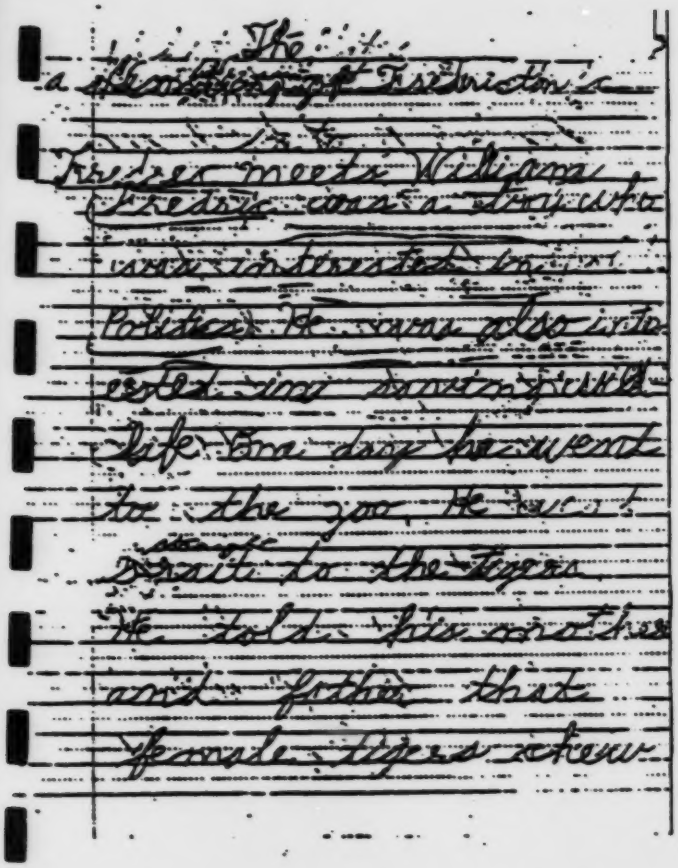
from it. I went
towards it. There
I heard a voice
"Help a hu-
human hers going
to wreck our par-
At the same time
I said "Get a mon-
ster!" there the mons-
ter said I wont hurt
you!" "Me neither!"
He invited me to his

p8 2

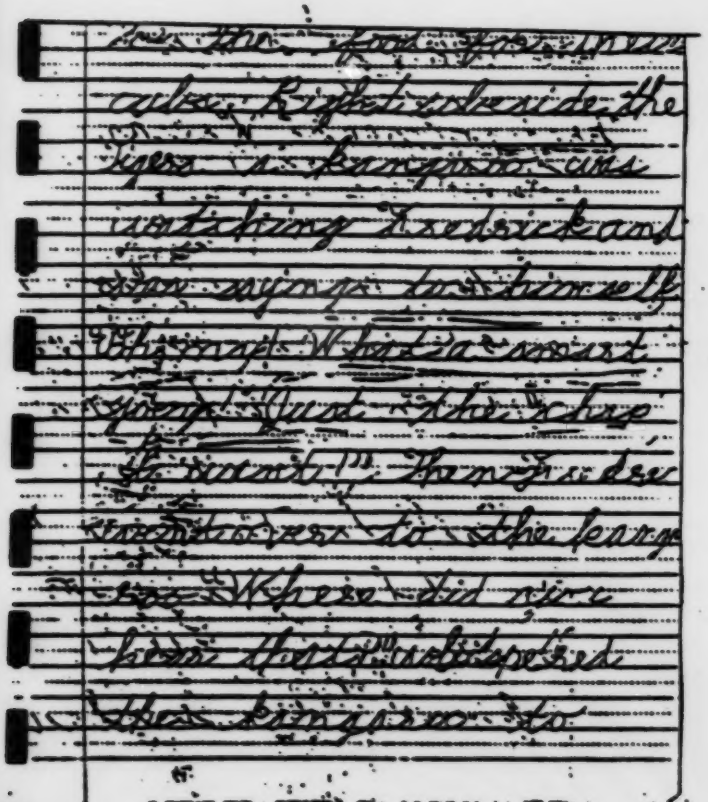
party. God I have
been going to
them ever since
those Halloweens
were the best
time ever had!

p8 3

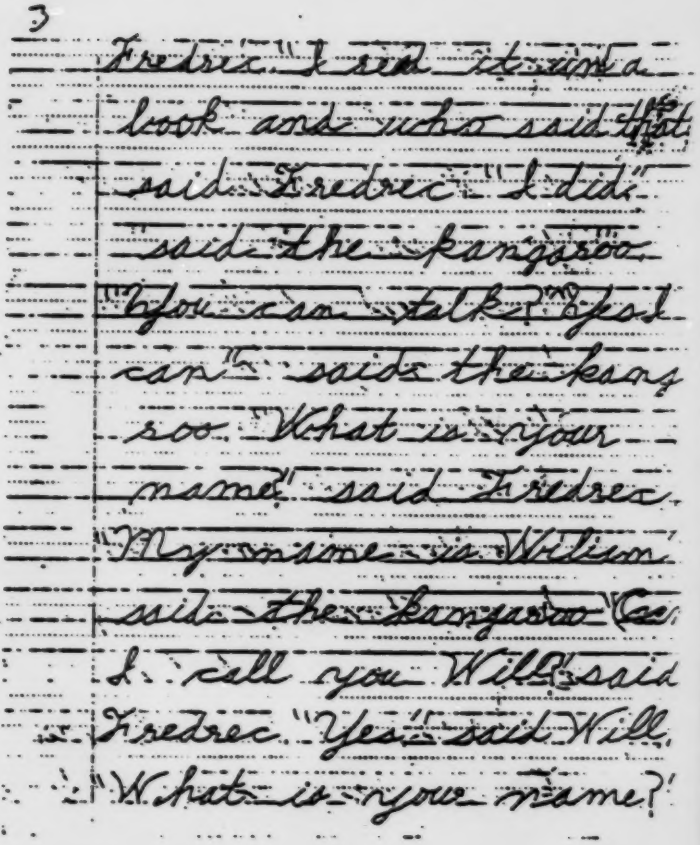
APPENDIX 3.3.1



The
a Fredrix meets William
Fredrix comes a boy who
was interested in
Politics he was also intro
duced into society with
life. One day he went
to the zoo he went
Draw to the Tigers
He told his brothers
and father that
female tigers threw

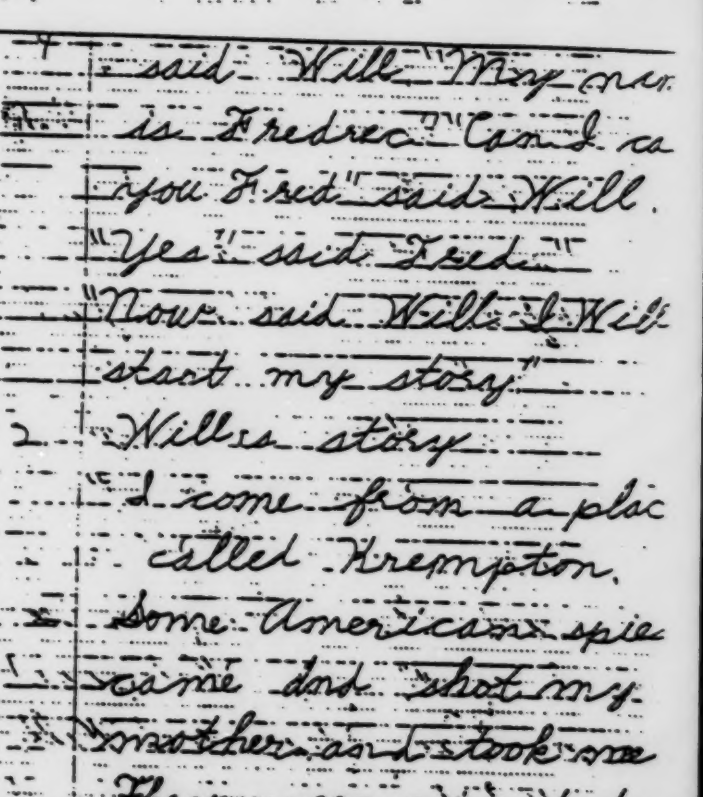


the food for them
also. Right beside the
Tigers a kangaroo was
watching Fredrick and
was saying to himself
"Why oh! What a smart
young Lad the boy
is indeed!" Then Fredrix
wandered over to the kanga
roo "Where did you
learn that?" whispered
the kangaroo to



3

Fredrix "I see it was a
book and who said that
said Fredrec "I did"
said the kangaroo
"You can talk?" "Yes I
can" said the kang
roo "What is your
name" said Fredrec
"My name is William"
said the kangaroo "Can
I call you Will" said
Fredrec "Yes" said Will.
"What is your name?"



said Will "My nam
is Fredrec "Can I ca
you Fred" said Will.
"Yes" said Fred
"Now said Will I Will
start my story"
2 Wills story
"I come from a plac
called Krempton.
Some American spie
came and shot my
mother and took me
They were going to do a

5

Experiment with dogs
in order that they could
make money out of
making poison to kill
kangaroos but it escaped
and was caught
by this cruel
zoo owner and
treated like a witch
ever afterwards."
Then Fred said "Will we
must have a plan."

6

"What for" said Fred.
"To get me out of
this stink pot" said
Will. "Oh" said Fred
"What shall we do?"
"That was what I was
going to tell you!"
said Will angrily.
"What you should
do" said Fred "is" "What
you should do is
shut up!" said Will.
"Now what we

7

should do is you
sneak
sneak in the
middle of the night
and get the key
and come and set
me free and set
the tigers free as
well" "Get out of
here and into
glorious Kempton."
"Now shall we do
that" asked Fred.

8

"Easy" said Will
"All you do is cra
through the openi
in the fence and
you're in the zoo
"Then go
go over to that
house over there
and get the key
out of it and
free me and the
tigers" "Right"

7

James. There you can
ride him and Lil
beast down the wal
"Good" said Fred.
"I have to catch up
with my mom and
dad, by now!"

4 Escape!

As soon as everyone
in his house was
asleep Fredric snuck
over to the zoo.
He crawled in

William Will said to
get on James back.
"Hello sub" said James
to Fred "Hello James"
said Fred "Let on my
back" Fred got on
James back Will
hopped up to the fens
and bashed it down
"Lets go" Out they went
into Kentucky down
down the sidewalk they

10

throght the hole
in the fence.
He went over to
the house which wick had
the keys in it.
Just his luck the
keys were right on
the desk "Yes" one
said tiger one said
kangaroo. He got
the keys and went
to the tiger's cage.
He let out James then

went until they go
to a great big hol
Oak tree "In we go!
said Will "But we won
fit" said Fred "Yes we
will" said James "Into
Kentucky" They went
into the tree then
Will said "Jump!" They
jumped and found
themselves in Ken
tucky There was a sign

13

that said welcom to Hershe in the prosinca of Hanguee in the Countiey of Hexsptor ruled by Wilson the ~~atta~~ "here we are said James "Are you the King?" said Fred to Will "yes" said Will "And James is the Prount of Hanguee" And Joseph the wolf is

14

the lord of Hershe. 6 The meeting of Joseph. They walked along a path until they got to a nearby big castle. "That my boy is Castle Hilger." "No castle" They went up to the edge of the moat and Will got it him sword out of a bag that he had

15

and blew a horn on times Down came the drawr bridge up went the portcullis a wolf walked out of the castle "That Joe" said James "Welcome your majesty and my lord You came at jus the right time we have been taken over by the Hungurian

16

they have captur and killed many of our leaders Go to help you get your kingdom back I will supply you each with a sword and horse Will you and James will be supplied with your own swords which you carried in the last war. And up

17

men rule will have a horse and sword for you to ride every time you come here if you come here again." "Yes." There was loud all of a sudden they heard hoof beats The hurrying coming "Everyone get out the

19

reason why you should have to use. Why don't you fight each other. Then you would have a larger country." We ag bing easy lady. "Nonsense" said the Turkeypee. "From an We will be killed. Then

18

army!" shouted Will they went inside the castle and got there weapons. They led the enemy inside the castle before they could charge. Fred jumped of ship, he swam and ran between both armies and yelled "stop! There is no

20

Freedom and It will be king." "There will be a king" said Fred. "you will decide Say yourselves then there will be no servants. Be the servants do their own stuff. But things use use does help each other.

21

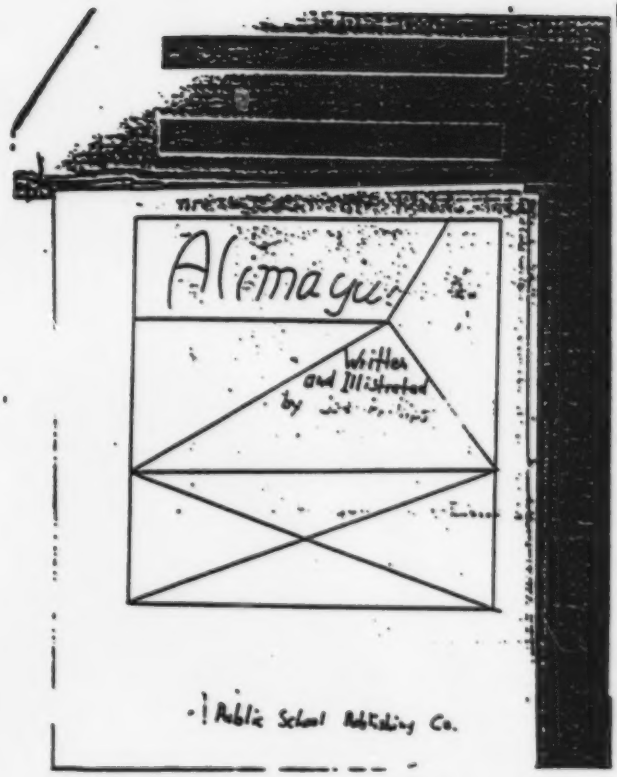
"I must be going home now good-bye" he walked down a path, said goodbye again stepped into the lake and walked out again, the sun was just coming up. He still had his sword. When he got to inside he hid his

22

sword under the bed. He got in and went to sleep. Back in Fredrea town they were celebrating Fredrea was made and it stayed good forever.

THE END

Pg 1



Pg 2

Once there was a family who lived in South Africa, where there are 25.000,000 blacks and 5,000,000 whites. The whites control the government and they treat the blacks very unfairly.

In this family there was a boy called Ali. He lived with his two sisters, two brothers and mother. His father was working in the gold mines. Ali would go to the mines in a week. While they were working in the gold mines, Ali and his father joined The African National Congress. (A.N.C.) They got lots of people to join the A.N.C.

Pg 3

When Alis two brothers got old enough, they went to a mine too, but this mine was built with a material that was highly flamable - if there was a fire, it would spread very quickly. The miners told the mine owners that it was dangerous, but they payed no heed because keeping the mine as it was would be much cheaper. So, as the miners had foretold the mine set on fire and 500 miners were killed - including Alis two brothers.

Pg 4

The owners of the mine were having a funeral for the [illegible] but the miners families were to have it. After all it was the mine owners fault, wasn't it!

Pg5

Ali's and his fathers influence was [illegible] all over South Africa and [illegible] was angry, they sweat [illegible]. One day an officer [illegible]. He was looking for Ali [illegible]. When he found the two [illegible] under arrest. He took them [illegible]. They were guilty [illegible] the government and convincing others to do the same. Their punishment hanging. On the morning that [illegible] supposed to be hanged. Ali escaped. He was going to escape this but it was too late.

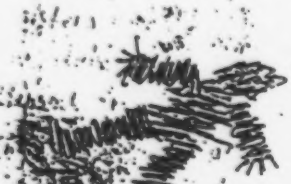
Pg6

Ali's family held a funeral. Everyone was mourning for father Ali and his family were just a few of the people there. All of a sudden, out of the night police officers came with tear gas and rubber bullets. Ali tried to defend the mourners, he picked up a rock and threw it. It hit a police officer he reeled back, he was dead. Another moment one of his sisters was hit in the temple by a rubber bullet. His other sister and mother collapsed from the tear gas. Now he was being chased. He darted through some evergreen the police couldn't follow. He got away. His life was going crazy. His whole family was dead. He had killed a man. He was a criminal.

Pg7

Pg8

After that things were more peaceful for Ali. but he still had difficulties. One day when he was old he got sick he was dying. As he died he thought of all the things that had happened to him and he cried. The last words that left his mouth were "apartheid will be over [illegible]



The End

Collaborative research: teachers as researchers

A report prepared by Marion Blake for the Language and Learning Project

Introduction and Background

In all cultural matters it is the form of growth that enables us to understand the form of the existing product.

Ernst Cassirer

The theory of interpretation is obviously a branch of biology - a branch that has not grown very far or very healthily yet... We shall do better to think of a meaning as though it were a plant that has grown - not a can that has been filled or a lump of clay that has been molded.

C.S. Peirce

These are two quotes from a collection of essays *Reclaiming the imagination: philosophical perspectives for writers and teachers of writing* edited by Ann E. Berthoff. The first introduces the section titled "Artists at work", and the second, the section titled "Interpretation and the act of knowing".

As will become evident, collaborative inquiry continues to grow even though the project has officially ended. Indeed, the tacit implications of Berthoff's section titles might fairly be applied to the central concepts that inform the work of the project.

In the following pages, accounts are given of the construction and growth of collaborative work within the Language and Learning Project. They will be concentrated on three major perspectives:

- the pedagogical principles underlying the decision to design the project as a collaborative one and the place of this project within the educational field subsumed under the generic term action research
- a description of the collaborative work that was undertaken during the project and also of the work presently being done that is a direct outcome of the Language and Learning Project
- a speculative interpretation of the collaborative work and the implications for research, for professional development planning and for teacher education, this based largely on the discussions and interprettions of the teachers and researchers involved in the project

The major portion of this section of the report will indeed centre on the work of individual teachers, and groups of teachers, in various forms of collaborative work. But it is important to place that work within the context of the administrative structures within which teachers work. Administrators - principals, vice-principals, consultants and area superintendents, as well as administrative central board personnel - played an important role in supporting, maintaining and extending the collaborative work. This is done in Section 9 "Collaborative work: Principals and other Administrators"

2. Professional Development and Action Research: New Frameworks for Collaborative Work in Schools

The Language and Learning Project was carried out within a framework of collaborative work that engaged both teachers and researchers, work that invited teachers to be

agents and subjects within the inquiry rather than passive objects of the inquiry. The project designers saw this agentive and subjective role as central to an emerging notion of the ways in which educational research might incorporate professional development, framed by a theory of reflective practice that allowed teachers to engage in systematic observations of, and reflections on, their own practice, in order to plan and inaugurate purposeful classroom change. In the literature of educational research, the terms used for this stance towards teaching include "teacher-researcher", "scholar-teacher" and "classroom- based inquiry".

During the three years of the project there also emerged a view of collaborative work represented in the literature under the more general term "action research". Action research itself is concerned with institutional change; that is, concerted action by a teacher or group of teachers within a school or a school district, to bring about curriculum change beyond an individual teacher's work and classroom. (See Elliott, 1988).

Both the construction of collaborative work and the inquiry are interconnected and interdependent. Both share a common ground, the re-examination of imposed and pre-packaged forms - of formal professional development events, and of curriculum policies, guidelines and documents. Inquiry as professional development and inquiry as action research require an organizational structure that allows and encourages teachers to assume responsiblity for their own professional growth, for the research into and development of curriculum and for the on-going work in their classrooms and schools.

The collaborative work presented in this report represents a range of scope, membership and intended outcomes. That range demonstrates and reveals the potential of classroom and school-based research conducted by teachers and formally appointed researchers to accommodate a wide spectrum of inquiries that are responsive to individual intentions, concerns, resources, and investment. It includes: individual professional development projects concerned with: one aspect of a Language Arts programme - spelling; an extended unit of work in one subject area - science; a study of children's use of language over several units of work; and, as well, more broadly based research projects including the formation and growth of an inquiry group of three teachers in one school; the establishment of a school curriculum committee; the preparation and presentation by teachers from two schools, a principal, and four researchers, of a symposium at an international conference. Separate discussions of professional development and action research may allow a clearer understanding of these two aspects of the collaborative work. However, we continue to emphasize that each influences the other and that the methodology and philosophy underlying each are similar and symbiotic.

Professional Development

> It is trivial to argue about the degree of knowledge necessary to begin teaching while we ignore the crucial question of how teachers can continue to learn throughout their careers. (Schaeffer, p. 14)

It is unfortunate that the term "professional development", at least in North America, has acquired connotations of discrete units of both time and subject such as Professional Development Days, and In-service Curriculum Workshops. Schaeffer's "continuous learning" is much closer to the notion of professional development envisioned by the Language and Learning Project, and expressed in the collection of essays assembled to honour Jimmy Britton on his eightieth birthday - *Teachers as learners*.

C.M. Clarke, in his keynote address at the 1989 Conference on Teacher Development:

Policies and Practices, describes traditional professional development activities as based on two assumptions about teachers and about learning: first, that teachers have deficits that must be fixed, and that all teachers are alike; secondly, that professional development must be done to, and forced on, teachers. Clarke itemizes the implicit assumptions inherent in this model: teachers are passive, resistant, deficient, faceless, and needy. Clarke proposes instead a model of generative and successful professional development that pre-supposes that teachers can and must design their own continuous learning.

This entails a radically different profile of teachers - teachers as diverse, unique, and active; and a radically different understanding of successful learning - that decisions to learn, change, and grow are voluntary. [Clarke's audience for his keynote address was largely administrators, teacher educators and consultants.]

There is a close link between Clarke's description of teachers' continuous learning and Gordon Wells' vision of education which he elaborated during a school staff meeting in the spring of Year 2. [The principal and the members of the research team had agreed to a meeting with teachers who, because of staffing decisions, were prospective Year 3 members of the project.]

> I have a vision of education that I wanted to start on this project. I've been researching in the field of language and learning for twenty years; this has led, not to conclusions, but to a new perspective. The vision and perspective I now have is essentially of literate thinking. What I mean by that is the recognition that literacy is far more than simply skills of reading and writing. In placing emphasis on skills, we may lose sight of why we want to read and write. We can see literacy as the possibility for increasing one's own capability as a thinking, feeling individual, increasing one's capacity to work to full potential. My vision of education is one that sees education as a powerful means for individuals to grow as people as they tackle more and more challenging problems.

Wells' articulation at that meeting of the new forms of professional development which collaborative work allows is intimately related to his view of two possible kinds of curriculum, or more accurately of a curriculum continuum moving from the limited and mechanistic to the open and organic. One view of curriculum is an industrial model using metaphors of package, programme and delivery, based on the most recent "scientific" research; embedded in such a model are notions of mastery learning and a desirable end condition of the students. He sets against this a model that views curriculum as open-ended and negotiable, that goes with the grain of students' interests; one might use the metaphor here of an "organic" curriculum. The same phrases might well be used to describe two views of professional development - one of packaged and delivered workshops leading to mastery teaching i.e., successful <u>implementation</u>; the other of an organic <u>process</u> that is shaped by teachers' and students' current work interests.

Ann Maher (1988), one of the teachers who participated in the project in Year 2 and Year 3, describes that organic process as she recalls her intellectual struggle with the first transcript that she received from Mei Lian Lam, the in-school researcher.

> Mei Lian wanted to know what I thought about that transcript. Struggling to shape my thoughts into words, all I could say was that I was genuinely surprised. As I tried to interpret my reactions for myself, as well as to Mei

> Lian, I was startled by the source of my amazement ... As I strained to explain embryonic insights, I was forced to behave more like a reflective practitioner. How could I tell Mei Lian what I thought when I did not know?" (p. *)

Maher (1988, p. 1), looking back over two years of systematic inquiry comments, "I am coming to know the extent to which my experience as a learner has informed my practice as a teacher. I have learned more than I have yet realized, but that is the nature of learning, it seems."

Action Research

The term action research was first coined by Kurt Lewin in 1946, in an article entitled "Action research as minority problems", published in the *Journal of Social Issues 2*.

Elliott (1985, p.242) applies Lewin's mode of inquiry to educational research and ascribes to action research the following characteristics:

> ...an activity engaged in by groups or communities with the aim of changing their circumstances in ways which are consistent with a shared conception of human values...It is not to be confused with a solitary process of 'self-evaluation' in the light of some individualistic conception of the good. It is a reflexive social practice in which there is no distinction to be drawn between the practice being researched and the process of researching it. Social practices are viewed as 'research acts'; as 'theories-in-action' or 'hypothetical probes' to be reflectively assessed in terms of their potential for realizing worthwhile change.

Elliott's notion of 'reflexive social practice' is emphasized as well by Carr and Kemmis (1986, p.191) as they describe teachers discussing their understandings and practices with one another.

> They do not simply talk about their practice. They institute discourse about practice, in which the comprehensibility of utterances, their truth, the sincerity of the speakers and the rightness of actions can all be examined...Action researchers come to develop their own educational theory from its basis in personal knowledge, through its expression in praxis [informed, committed action], to its systematic development in the discourse of self-reflective communities of action researchers.

In the United States, Stephen M. Corey of the Horace Mann-Lincoln Institute, Teachers College, Columbia University, published a collection of articles and essays written over the previous five years under the title *Action Research to Improve School Practices* (1953). This is one of the first substantive reports that situates Lewin's action research within educational research. One of the chapters, "Action research as a way to learn", reports the collective thinking and research of thirteen students and two instructors in a seminar "...to provide training for action research consultants" [p.107]. The primary concern of the seminar was with the human relations problems faced in action research.

Following Corey's work, and the publication (also by Teachers College Press) of Shumsky's *Action research: a way of learning* in 1955, little research was reported in the United States until the early 70's. However, during the last ten years reports of action research and teacher-as-researcher work have flourished, both in print and at conferences and workshop presentations. Action research has developed into an international movement, with significant work reported in the United Kingdom,

Australia, Canada, Germany, Austria, Iceland, the USA and Spain. (Elliott, 1985, p.231)

Early exemplars of action research in the United Kingdom are Lawrence Stenhouse's Humanities Curriculum Project in the early 1970's, and the Ford Teaching Project. Both were based at the Centre for Applied Research in Education (CARE) at the University of East Anglia. The Classroom Action-Research Network (CARN), based at the Cambridge Institute of Education, was established in 1976.

In 1983 M. Cameron-Jones reported on the Focus on Teaching Project, Moray House College of Education (Seminar on Pedagogy, Glasgow). This project was particularly concerned with in-service possibilities of action research.

Reclaiming the classroom: teacher research as an agency for change, edited by Dixie Goswami and Peter Stillman, was published in 1987. It is a collection of essays by a number of teacher researchers, including Garth Boomer (Australia), James Britton (England), Ann Berthoff and Shirley Brice Heath (USA). Most of the reported work originated at the Bread Loaf School, which Goswami directs; she has been a leader and originator in the field of collaborative research for several years.

In 1983 the final report of a two-year study of teachers, *Stages of development in relation to collaborative action research in schools*, was published by the Department of Education, University of New Hampshire.

At the 1984 meeting of AERA Gerald Pine reported on a two-year collaborative action research project - Action Research on Change in Schools (ACRS) involving two groups of middle/junior high teachers, one in Michigan, one in New Hampshire. The pervasive concern of the teachers was school change, although the stated purpose for the university researchers was to examine individual change. The teachers particularly approved the peer support and the sharing of ideas; both teams created an operational context based on collegiality and inquiry. Both teams recommended that this context become the schools' context for decision-making and initiating change.

The August 1987 issue of *Education and Urban Society* was devoted to the School-University Partnership for Educational Renewal (SUPER) at the University of California, Los Angeles. Bernard Gifford in his Editor's Introduction, describes the purpose of the issue as:

> ...to disclose some of the important lessons we have learned about the process of establishing and conducting collaborative research and to then examine, within the larger education community context, the best next steps for our particular partnership effort, as well as for the education reform movement in general.(p.363)

Coming to know this process of establishing and conducting collaborative research is essential if action research is to become institutionalized. Elliott (1985, p.248) refers to this - research into the facilitation of action research - as second-order action research. He suggests that there are three forms of organizational cultures: role culture, person culture and task culture. He acknowledges (Elliott, p. 246) that the action research paradigm is not an easy one to realize within schools organized as role cultures or person cultures. In a role culture school inputs and outputs are defined and standardized. In a person culture school,

> based on an idea of teaching as a craft grounded in intuitive, tacit, knowledge-in-action, teachers are regarded as *autonomous* experts, [my italics]

and thus the school is unlikely to foster *collegial* and collaborative work.

Elliott proposes that,by contrast, it is within task culture schools that productive action research can most readily flourish, and draws on the work of Handy (1984), who describes such task cultures as an "organizational idea in which a group or team of talents and resources are applied to a project, problem or task..."

Handy continues:

> It is the preferred culture of many competent people, because they work in groups, sharing both skills and responsibilities; they are constantly working on new challenges since every task is different, and thus keep themselves developing and enthused. The task culture is usually a warm and friendly culture because it is built around a co-operative group of colleagues without much overt hierarchy. There are plans rather than procedures, and reviews of progress rather than assessment.
>
> These cultures thrive in institutions where problem-solving is the job of the organization. (p. 367)

Elliott speculates that the "threat" of role culture is a major reason for the spread of the action research movement. It was perhaps the "existence", rather than the "threat" of role cultures that influenced several teachers to commit so much time and energy to the Language and Learning Project. Although outside the mandate of this report, the framing and description of school cultures within Handy's categories may lead to more informed ways of planning collaborative work within specific schools and school systems.

Those engaged in collaborative inquiry and research, as experienced in the brief summary of recent work presented above, must enter, or if not enter be aware of, the issues of whose knowledge counts and what counts as knowledge. David Dillon raises these two issues in his editorial (p.707) in the November 1987 issue of *Language Arts*.

The debate about what kinds of knowledge count is not confined to the fields of knowledge within education or even within the social sciences. One of the difficulties is our persistent folk-belief about the "scientific" nature of knowledge. Knoblauch and Brannon (1988, p.19) quote Stephen Jay Gould on the pervasive "Western myth that science...is an objective enterprise, done properly only when scientists can shuck the constraints of their culture and view the world as it really is". Knoblauch and Brannon continue, "It is not surprising that government officials, education administrators, school boards and parents should welcome the alluringly hard data of IQ and SAT scores..." (p.707)

Pope and Denicolo (1986) speculate that Rist's assertions on educational research and quantitative methodology are still true at the time they are writing. They offer the following quote from Rist:

> Quantitative research is the dominant methodology in educational research. It is more widely published, taught, accepted, and rewarded in the educational research circles than any other approach. In the extreme, quantitative research is characterised as equivalent to The Scientific Method. (Rist, 1977, p.42)

The extent and effectiveness of the challenge to this "dominant methodology" by teachers and researchers who propose other views of the ownership, and kinds, of

knowledge that count is uncertain. Two recent textbooks provide evidence to support Rist's claim.

Robert Slavin's *Research Methods in Education: a practical guide* (1984) has no entries under "Teacher Researcher", in fact only two entries (p.306) under "Teacher". The first is "Teacher Effects", 115, 228. These are references to a five line definition of "Teacher Effects" in a section on "Confounding Variables", and to a definition in the Glossary (actually on p. 290. The Glossary definition, in its entirety, reads: "The effects on students of having a particular teacher". The second is an entry in "Teacher Manuals" (p. 131-133), within a section entitled "Planning procedures". One sentence is typical of the two-page section: "Teachers should be given a means of introducing *their* (my italics) methods to students, possibly even including speeches to give to the students, or at least very explicit methods to use to be sure that students understand what they are going to do." Paul Croll's *Systematic classroom observation* (1986) has entries under both "Teacher and collaborative research", 94-5, 178 and "Teachers as researchers", 2-3, 177-9. One quote is representative: "...one of the distinctive features of systematic classroom observation is that the observer is *outside* (my italics) the situation which is observed.

Certainly the majority of persons directly and indirectly connected with the Language and Learning project were shaped professionally, at least in the early stages of their careers, within such an exclusively quantitative paradigm.

Because of the misplaced use within the research community of the term "qualitative" to label research that is not primarily quantitative, two difficulties arose. One was the validation of a long-term observational study as genuine research and the second was the apparent anomaly that what may have been described or understood as "not quantitative research" legitimately included quantitative methods within the overall "qualitative, ethnographic" methodology.

This is a topic not generally discussed in the literature, but the knowldge *about* research held by participants, or potential participants, in a collaborative research project, needs to be taken into account. This issue is discussed in more detail in the last section of this chapter.

Since quantitative research by its nature provides "results" - specific answers to specific questions, it should not have been surprising that by Year 2 teachers, principals and advisors were disappointed that no "results" were available. In retrospect, it is clear that we should have been more mindful of the possible lack of knowledge that teachers and administrators were likely to have of the nature of qualitative, longitudinal research, as well as of the length of time the analysis and interpretation of the evidence would demand.

This dilemma was confounded because the research design contained both quantitative and qualitative methods. The ethnographic notes were coded to allow computations of time spent on various activities within the classroom and this quantitative information was reported to the teachers at the end of Year 2, but with little time for explanations about the criteria used to assign a code to a specific activity. In some cases it seems likely that individual teachers did not realize that this was a device to describe the surface events of a classroom, and not an interpretation of those events from the teacher's perspective.

In a similar vein, it was essential that the progress of the cohorts of children in four schools over three years be monitored by means of the same instruments. Adaptations of standardized tests were used, and although not administered in standard testing

ways,[see section on progress assessment] the results were reported to the teachers in familiar test terminology, such as "Reading at grade 3.5 level".

Whose knowledge counts continues to be a contentious issue. Arthur Applebee (1987) states one position:

> I [argue] that educational research should not be justified by expectations for immediate reform of practice...By the same token, the classroom teacher is inevitably an imperfect researcher - the agendas of the classroom are too different, and the daily demands too pressing, to expect most of us to be both researcher and teacher at the same time. When we try, the two roles may even conflict - the detached observational stance of the researcher intruding upon the teacher's needs to make immediate decisions about how to respond to and shape the emerging life of the classroom.

Patterson and Stansell, in the same issue of *Language Arts* address Applebee's depiction of teachers as "imperfect researchers". They characterize his position as based on a positivistic, notion of research. They contrast this with a view of research that is interdisciplinary, in "which a completer, coherent picture of the educational process is constructed to guide the collection and interpretation of data", (p. 178).

They quote from Cremin's book *The transformation of the school*, published in 1961 "...the payoffs of teachers as researchers abound. Teachers report that they felt an enriched professionalism, more confidence in instructional decision-making, a defense against burn-out, and a new appreciation for theory." These and similar observations have been made by several of the teachers involved in the project. Not surprisingly, the most detailed and enthusiastic observations are made by those teachers who have had the opportunity to work intensively on a satisfying project that has earned public recognition - an invitation to speak at a conference, a workshop presentation to immediate colleagues, an invitation by an academic to co-author an article , or to have one's work serve as the focus for detailed investigation and reporting - at conferences and in scholarly journals - by university researchers.

In collaborative research, regardless of where it is situated on a continuum from professional development to action research, teachers are invited "to think beyond imagination", to participate in the process of knowing. This is a paraphrase of Vivian Zamel's essay, "Thinking beyond imagination; participating in the process of knowing", in *Audits of meaning* (1988). Zamel describes what can happen in writing classes driven to reductionist and lock-step pedagogies (Ann Berthoff characterizes this as the "pedagogy of exhortation") imposed by their teacher training, their in-service training, and the constraints of various levels of administration. Zamel proposes instead a "pedagogy of knowing" - the development of "literate-ness" rather than the mastery of isolated literacy skills. Clearly the collaborative work which the design of the Language and Learning project allowed is within such a pedagogy of knowing - a rich, deep and complex engagement with making meaning.

3. Overview

Reports to funding agencies, conference papers and journal articles provide the detail not only of the events and decisions within the project, but more importantly of the principles and theories which guided the on-going work of the project teams.

Three major reasons for undertaking collaborative research are identified in the reports:

1. To break free of the traditional relationship between researchers and teachers, in which researchers carry out an investigation in teachers' classrooms and then, on the basis of their conclusions, make recommendations which the teachers are expected to implement.

2. To involve teachers as agentive partners in the process in such a way that the theory that is constructed is derived from, and has as its aim to illuminate and enhance, classroom practice.

3. To enable teachers to see their own classrooms and schools as places in which they continue to be intentional and systematic learners about the curriculum they are creating or adapting and the ways in which that curriculum affects their own, and their students' learning.

Within this framework, there was a conviction that teachers' needs are much more successfully met through school-based support groups, in which teachers collaborate with colleagues - from within their own school and also from other communities - as they together try to find effective ways of working in classrooms, ways that are contingently responsive to both the experience and expectations of parents and children, and to their own professional and personal knowledge and practice. As we will see, the establishment of teacher-researcher groups whose membership extended beyond the designated project teachers was from the beginning one of the primary goals of the project. Section 9 of the report will also describe the influence and contribution of principals and other administrators.

Although the members of the research team were very explicit that the issues around which specific teacher-initiated research might focus were not pre-determined, the overall interest of the project on language and learning, - with particular reference to classroom interaction, writing, and literate thinking - doubtless shaped the choices. Crucial statements on pedagogical practice embodied in the proposal, reports, journal articles and discussions include:

- The quality of the learning, therefore, is crucially dependent on the style of classroom organization, and in particular, on the nature of the linguistic interaction.

- School learning at its best involves collaboration between child and peers and between children and teacher in the pursuit of understanding of topics in which all have a lively interest, and to which all have a personal commitment.

With minor changes one can rewrite the last statement and obtain a succinct statement of the ideal structure of collaborative research:

- Educational research at its best involves collaboration between teachers and researchers in the pursuit of understanding of topics in which all have a lively interest and to which all have a personal commitment.

Research members of the project team continued to explore the ways in which teacher participation in the research component could be nurtured. In a paper prepared for delivery at the 1986 meeting of the Canadian Society for the Study of Education, Chang and Wells propose three central issues: the nature and structure of the teachers' and

researchers' participation; the relationship of research to practice; and the changing notion of professional development.

Chang and Wells emphasize that teachers who are unfamiliar with collabortive work may feel in some ways "on trial" and, as well, may have a sense that they are relinquishing part of their autonomy in the classroom. It is the researchers' responsibility to understand teachers' concerns and in discussions and reports to continue to interpret and represent the classroom community from the teachers' meaning perspectives and not as the researchers might wish it to be.

Researchers can help teachers to develop personal theories of the applicability of research for curriculum decisions by discussing current research that deals with the curriculum problems that teachers are presently concerned with.

Teachers can be encouraged to see themselves as producers, as well as consumers, of research; that by observing, recording and interpreting what they see and hear, they contribute as experts to their own and their colleague's professional development. In this way, teachers can come to see the knowledge they are collaboratively creating as connected to an already existing body of knowledge.

Over the life of the project, recurring issues emerged around which new understandings developed for teachers and researchers. These major issues can be stated as:

- The value of detailed observational data for the reflective analysis of the learning experiences of individual children and of teachers' actions within a variety of contexts
- The inter-relationship of action, talk, reading, and writing in the development of literate thinking
- The potential for the enhancement of learning opportunities that occurs when children learn co-operatively in small groups
- The children's transition from home to school and the possibility of inaccurate assumptions being made by either teachers or parents about the intentions and practices of the other
- The importance of the teacher as role model in terms of linguistic, intellectual, and ethical behaviour
- The development of skills in observation and analysis, and in reciprocal learning by both teachers and researchers, as an essential part of collaborative research
- The interpersonal skills needed to communicate the impressions formed when documenting observations

In the next section a detailed report is presented of the major modes of collaborative work and research that were undertaken during the three years of the project: school research groups; the meetings of the project teachers from the same grades; the collaborative work that allowed both teachers and researchers to focus on the classroom as a whole, that is to include children beyond the target group [these became known as 'free-round' projects]; cross-school projects; and individually negotiated projects.

4. Collaborative Work: Cross-school Grade Meetings

A variety of types of collaborative work were undertaken in Year 1 that, as has been seen, laid the groundwork for more extensive collaborative projects in Years 2 and 3. In particular, cross-school grade meetings were established on a regular basis. Their overall format was similar: release time for the participating teachers was provided by the project; the meetings were scheduled for an afternoon time block, beginning with lunch; all members of the researach team were usually present. The sense of a social occasion was emphasized, and there were opportunities (unfortunately otherwise rare) for informal conversations about the project work and the directions in which it was moving. The last two hours of the afternoon were devoted to individual presentations, further discussion about particular and general isssues, and to some extent about the process of participating in a collaborative research project.

In the spring of Year 2 the increase in the number of researchers made it possible to plan across-school grade meetings for the project teachers in each of the three grades. In Year 3 cross-school meetings for Grades 2, 4, and 6 were planned for early December and late May. Because of the three-week industrial action by the teachers in the fall of Year 3 and the resulting heavier teacher work load (and the necessity for the school-based researchers to compress their observation schedule),the first round of meetings could not be held until mid-January. The second round took place as planned in late May and early June.

There were two major purposes: to extend the feeling of membership in the project by attending a social occasion that included all OISE project researchers and the teachers in a particular grade in each of the four schools; and to provide an occasion for each teacher, with the help of one or more researchers, to prepare a presentation on a representative piece of work for comment and discussion with colleagues working in the same grade.

Here is a typical agenda:

Children learning to write and writing to learn

1. The classroom newspaper: some observations of children learning
2. Fiction and non-fiction writing: teaching and learning implications
3. Oral and written conferences: issues on monitoring and enabling growth
4. Views on what counts as writing in Grade 6
5. Teacher-researcher collaboration: sharing assumptions

Particularly in Year 2, the presentations by the teachers were closely and carefully worked out around common themes with a member or members of the research team. Usually there were clips from classroom videotapes compiled to address a particular issue or unit of work; samples of children's writing and drawing; and transcripts of audiotapes and videotapes.

The intention was to create a representation of children at work, and children's work, so

that everyone present had a common text to discuss and comment on. It seemed that the direction, tone and depth of the discussion depended in part on the detail included in that common text, and the extent to which the teacher had been involved in choosing the focus and the substance of the presentation.

As one examines the records of the cross-school grade meetings - field notes, audio tapes and transcripts - it becomes clear that there were further benefits, perhaps unanticipated,that accrued from these meetings.

At the cross-school Grade 4 meeting in January of Year 3 a common theme had not been set. One teacher was invited to begin

T1 I'd like to talk about editing. What am I really suposed to be doing, particularly when the stories are quite good. also how much time should they spend re-writing a long story, plus all the spelling and capitals. I have five or six children who write long pieces; it really takes a long, long time to edit them - and that's after school. How do other people deal with it? And there's the quesiton of ownership too.

T2 That's especially true with process writing. We're supposed to interview each child on an individual basis, that's thirty or thirty-five children. if they write fairly long stories, and you mark everything that's there. And if I find something major, that happens over and over, I'll mention that one repetitive mistake.

T1 Do you worry about gaps? Suddenly they're someplace else, and I say "How did you get from here to there?" Is that really important with little children?

T3 I think of nudging; I say "I don't get this.". They have ideas in their heads but they don't know they're not on the paper. They have to think about the audience.

T1 I do ask questions, and sometimes they say "Oh, yes", but it's more the story line, they don't know how to connect the action.

T3 I think you're talking about major structural things

T1 Maybe it's just a lag; they do become better storywriters. Often children make a big jump.

T3 I remember last year in Grade 3, a child got so involved, she wrote 32 chapters. You wished she'd stop. She was more into writing for writing's sake; she wasn't concerned about structure.

T1 Maybe that's what it comes down to, just enjoying writing. They get caught up in the action and it's just as though they'd skipped a page.

T3 *You're making me think* (my italics) A little girl, Barbara, last year she wrote great long stories. This year in her writing she's more able to hear what I'm saying, I can offer her her direct experience. "Gosh, Barb, last year, in December, you were wishing the story would go away. Here it is in your writing log." Then, this time, I set a deadline of five days. She was so pleased with her accomplishment. But then I'm lucky, I have the kids for two years.

T1 What you're saying, is it that we just should do the same thing with

the better writers as we do with the weaker ones? Even though I'd expect the bright children to make an outline, like an adult.

T2 I find that out of necessity I'm not conferencing on a one to one. more with small, very small groups. Especially if it's a mixed group. They sometimes don't understand the comments coming from me, but it seems quite logical coming from another child. It's amazing what comes out.

In this brief exchange , with no intervention from the researchers present, three teachers have dicussed a common curriculum concern by drawing on their own experience to describe specific instances and to pose questions as they reflect together on those instances. In Polanyi's phrase, they are participating, as knowers, in "acts of understanding".

What follows are illustrative episodes taken from the evidence of the Year 2 and Year 3 meetings that demonstrate teachers and researchers in the process of teaching each other how to select evidence, interpret and analyze it.

Episode 1

T1 has described the word processing software her Grade 1 children use to write stories.

A researacher asks, "How has it affected the sort of writing the children do?". Although he is of course interested in the answer, he is at the same time demonstrating a way of formulating generative questions.

As T1 replies, she articulates her own observations of young children using computers during the past 3 or 4 years.

"They begin to write more. They're conscious that words have spaces between them. They will revise more." And then, thoughtfully, and with emphasis, "They *will* revise."

Another researcher then asks "Have their stories changed?" "Do they have an understanding of what it means to be a co-author?" Although these two issues are not taken up at the time, one can see that ways of extending and deepening an inquiry have been demonstrated.

Episode 2

In one of the video clips of T2's class - a discussion group - the children put up hands to signal that they have something to say. A researcher comments: "That raises an important issue. If you have only one speaker at a time you may lose spontaneity." Here a "normal" classroom procedure - turn taking signalled by student hand raising, with permission to speak granted by the teacher - is challenged (very gently) by juxtaposing the loss of a "benefit" of a more informal discussion format - spontaneity.

A researcher extends this issue of classroom management further: "There are two kinds of children, the reticent and soft-spoken and the energetic noisy lot; two ends of a continuum. How do we respond?" Because all teachers have encountered this dilemmma, and have stories to tell both as teachers and learners, a lively discussion ensues.

Episode 3

The meetings present opportunities for teachers to articulate critical and experience-based observations for interested colleagues. T1 presents a critical appraisal of the classroom uses of, and expectations for, computers:

"They're being used as electronic workbooks. Software publishers claim: "Use this programme and your children's test scores will go up." Some studies show fantastic gains. I don't think there can be vast gains with one computer and twenty children." "It has to be in the classroom all the time, a tool to use. If it's in the room I can walk over and say 'Are you having a problem?'"

And then she looks to the future: "Many teachers don't want computers in their rooms. But they should become knowledgeable, even if they don't plan to use it."

Because T1 has been involved in lunch hour and after school computer programmes for older children she is in a position to make a more general observation about children and computers, and about the opportunities for teachers to learn from their students.

"When they get a little older they say "How can I make the machine do this?". With a new graphics programme they discovered things it could do that Sue [another computer teacher] didn't know about."

Although this topic - teachers learning from children - is not pursued at the moment, it has been raised, and raised by a teacher, not a researcher.

Episode 4

T1 has shown a series of video clips of her children working on an integrated star and space theme. T2 queries "There was a boy in blue, was he a new Canadian? He spoke very haltingly." T1 replies "He speaks in broken English,but *he understands more than he can tell me* [my italics]." In this brief exchange a teacher reveals the depth of her understanding, based on her own observations, about the relationship between what can be expressed and what is known, and about the intellectual ability of the children in her class for whom English is not a first language, an ability that for some teachers, in the same circumstances, may be hidden by a child's lack of facility with English.

Episode 5

As they view the videoclips closely with colleagues, teachers have the opportunity to reflect on and inquire into representative instances of their own practice. A brief bit of T1's video shows a small group of children discussing whether the lined paper can be used for drawing. T1 comments: "I found that discussion fascinating. I've never said which kinds to use. I've never said 'Don't draw on the lined paper'".

Episode 6

An instance from the data which the researchers have collected comes to mind and is quoted to illuminate, extend, and validate the teacher's practice. One of the researchers involved in the data collection comments: "On a transcript, your children show an enthusiasm to understand what the computer can do, and to master the process.They say: What did you do? How?"

Episode 7

The meetings provide opportunities to explain the nature of the research. A researcher states: "Our intention is that the notes taken in your class should be a window into your class." At the same time he alleviates possible anxiety as he comments on the limitations of the videos: "The videos do distort, they're not completely accurate. The videos give a close-up, but not such a good sense of what's going on behind." These comments are re-assuring for the teachers who realize that brief representations in the video clips have not shown their classrooms as they know them.

Episode 8

T2 reflects on his own teaching style in comparison to that of T1, represented in a few minutes of videotape, "I like your class exchange. I'm in more control than I would like."

Episode 9

T1 says, of the experience of seeing a video of her class which her brother had made: "After seeing myself, I decided not to talk so much, and to let the kids talk more. *I've evolved over the year* [my italics] ." The teacher is expressing her knowledge that her teaching is not static, and that opportunities to observe her own work, and to reflect on it, give her a basis for change and the evidence that the change she envisioned is occurring.

Episode 10

A teacher who has now been in the project for two years, describes the buddy writing project which he and a non-project teacher (the JK\SK\Grade 1 family grouping teacher) have undertaken. It is an extension of the buddy reading programme which has been in place in the school (under the primary teacher's leadership) for the past four years. The teacher-librarian is also a partner in this work (see section FIG)

A researcher queries: "I'd like to know if it's made any quantitative difference."

Another researcher asks: "How does the writing compare to other, regular writing? Is it more careful? Are there any obvious differences?"

Both researchers are suggesting very specific lines of inquiry into the existing data.

The first continues, "I'm really intrigued by the actual text ... Fascinating that it emerged in this sort of form. Perhaps you could record all the sessions next year, and see how the text is generated."

And the second adds "If you had process data, perhaps following two pairs." Now the researchers are encouraging the teachers to extend the inquiry in to the following school year, and with a specific focus - the generation of text. At the same time their interest validates a new curriculum design - buddy writing - that two teachers and a teacher-librarian have developed.

Episode 11

A teacher and a researcher presented videos, made over several weeks, of the grade 6 class writing and publishing a school newspaper. The teacher presents a clear statement of the issues that concerned her during the inquiry: the selection of topics for the paper; the quality of the writing; the violence of some of the topics and what interventions to make; the autocratic leadership that developed within the editorial group.

The discussion moves to reading groups. The teacher says: "No one tells them, but they know which is the top reading group. ... Some of my children go to gifted. If one of the top students makes a mistake, the others almost cheer."

A researcher introduces the issue of heterogeneous grouping. "Children manifest task oriented behaviour in different ways. They tend to be the top children, the bright children. Group work works against them; the others aren't as fast." In this instance the problematic nature of an assertion - the relationship between bright children and heterogeneous grouping - is not explored.

Episode 12

At the end of the meeting, the chairperson sums up, validating the work that has been

presented, placing it within larger contexts, and engaging in the speculative beginnings of further inquiry.

"Threads from this afternoon ... the reading and writing connection, and the various kinds of talk. All from JK to Grade 6. In the work presented, the children write for a purpose, they draw on reading, and they do it together. You've shown extremely beneficial ways of making reading and writing more real. There's also the role of the teacher; both of you have organized a framework in which these things go on."

"I'm interested in where they get their models. How do they know what the genre's like? Where do they get the examples?"

Episode 13 At this meeting a teacher in whose class a researcher had worked extensively presented a section of videotape. The researcher had edited extensive video-tape recordings to prepare a composite video-tape for conference presentations; the teacher a coherent excerpt to illustrate the work. As well, since she and the researcher had had the opportunity to discuss and analyze the tape during several meetings, the observations she was able to make were particularly focussed and thoughtful and prompted insightful queries and extensions by the other teachers.

T1: This was part of a two-week school unit on winter. I read *The Cremation of Sam McGee*. My vision was a little hazy, but I knew I wanted the children to respond to the poem. Through brainstorming they came up with what interested them most. They were free to choose a topic and how they would pursue it.

They had a lot of bright ideas about all the things they would research. A few days later we got together to talk about how they might pursue this, and firm up the presentations, how they would share what they had learned. Over eight school days the children were free to work for the whole morning.

T1's voice on tape. What do you boys plan to do with this work? How could people learn from all of this?

T1: I was trying to have them reflect on what they had done, where they were going, what they were trying to do.

T1's voice on tape. Do you think you could write about how you boys did this project? Remember the first day or two.

I don't remember where that idea of the game came from. Do you remember?

So that's how your project changed your ideas, it sort of grew...

T2: It [the video] confirms in my mind how really self-directed these kids are, given that kind of openness. But we always have kids who won't...

T1: I do have those kinds of kids, but every kid did something. Each kid did learn, did have something for the parent's evening.

A lot of interesting things happened. Without any interruptions, I was freer to stand back - it was because of the school organization.

T3: We're afraid to let go. Afraid of the parents. "Haven't you done your long division?" I'm made to feel very accountable.

Researcher: Don't you feel that occasions like this [the parent's night] give you confidence, you can tell parents "This is why I'm working this way with your children".

T4: When you're talking to parents one on one it's different.

T1: This was a special occasion; we'll do it again. It was such good PR; the kids took people around, they taught the parents. I'm new in the school, but the news drifts back. I'm really happy.

T4: I'd like to comment on your role. You kept the focus. When there was something the kids can't verbalize, you were saying "What's in their mind?"

T1: I was aware I was doing this over the two weeks. Because of accountability, I did my record keeping in my day book. They told me what they were doing, and they knew I was writing it down. If they changed their minds, they came and told me.

R1: It's extremely fascinating. You model the role of writing - on the board, in your notebook; exactly in the way you hope they will do

T1: I really learned that the important part is that they teach other children what they learned. We invited other children to come. Very important for them to try to articulate.

R2: It was very successful. When some children came who had newly arrived from Portugal, the children who were explaining switched to Portuguese.

R1: One of the children was absent when you read *The cremation of Sam McGee*. The other children read it to that child, talked about "the part we liked best'.

The chairperson now shifts the discussion to the advantages and limitations of group work.

T2: We're involved in a new theme now - totem poles, drums. They want to work in groups. It seems to be working out really well.

T1: It's very interesting. A lot work together. A lot work side by side.

T3: A lot of teaching goes on amongst the kids. One advantage for group work is socializing skills. One little girl is very shy; she listens but doesn't participate much. I've finally seen her being assertive. It's taken her all these months to think it through.

T2: I'm just thinking that we did something very similar at the beginning of the year. It was not as successful; I think they weren't quite ready. Now they're more confident.

T3: The showing of the product, that's so important. Ownership.

R2: Would you share with us your role?

T1: Once it got rolling, I was the facilitator. For information, I got together some books and equipment. I was really a floater. When they needed to discuss something I was there. They dealt with questions and pursuits on their own.

I don't think I did that [answered questions]. Because quite frankly, I didn't know that much about the Yukon.

A researcher comments that so many teachers are frightened to admit they don't know everything.

R2: You were asking genuine questions, not display questions.

R3: In the whole process of teaching and learning, which aspects are more beneficial for group work?

T1: There is a place for different kinds of work. I did feel funny about no maths slotted in. But it was no problem, I had three days of all math. My day book looks strange.

I do write it down. That's a condition of my employment. This is what the record is.

Chairperson: In group work children develop as agents in their own learning. That's not easily possible in other situations.

I'd like to raise another topic. How does writing relate to group work?

T1: Writing is integral to the school day. Writing or illustrations. It's not always words. In math they talk about the problem, write the solution. I try to write out what I'm thinking about.

T2: Once they can write, they know themselves that they understand the concept.

Chairperson: One of the things I notice, where writing is part of group's activity, typically one person does it. But in the group there's a great deal of discussion. At the same time, writing provides the focus. As a group there's explicit planning and revising. Writing acts as a focal representation, it provides a model for engaging in the process.

5. Collaborative Work: Teachers' Inquiries Extending Beyond the Target Children

In Year 3, in discussions that occurred over several team meetings, a plan was evolved that would allow teachers and researchers to engage in inquiries that allowed the in-school researchers to set aside the assigned observations of the target children and to create, possibly with the other researchers and the principal investigator, ways to work more responsively on issues which the teachers identified. It also provided the opportunity for the in-school researchers to observe and record in more systematic ways the life of the classroom as a whole, as a community within the school community. It was expected that a "thicker"and more organic description of classroom events and interactions would be possible.

Descriptions of these classroom-focussed projects are presented by grade.

Grade 2

School 1

There were only three Grade 2 projects (in School 2 the Grade 2 target children had been, through staffing and retention decisions, dispersed through three classrooms. This made it impossible to arrange a Grade 2 inquiry project in that school.

The Grade 2 teacher in School 1 was in her second year in the project; in Year 2 she had been the Grade 1 teacher for the project children. The teacher and the in-school researcher had established a reasonably amicable and productive working relationship. At the same time, the researacher had some reservations about the teacher's practice, particularly with regard to her interactions with the Chinese children in the classroom. In discussion early in January, the teacher had suggested that an inquiry focussed on a planned unit of study on the Olympic Games might be fruitful. (This in essence was the type of "episode" that Wells had suggested as possibly defining the boundaries of this particular round of observations - the planning and completion of a specific unit of work in which the whole class participated).

However, after the January cross-school Grade 2 meeting, the teacher decided that she would prefer to focus on a small group rather than on a unit that involved the whole class. Early in February the teacher and the researcher met to identify the group of children and the specific issue that the inquiry would address.

The discussions that followed, although frustrating for the researcher and possibly for the teacher as well, illustrate one of the major difficulties that researchers whatever their experience, encounter. It is important to keep in mind that neither the teacher nor, in this case, the researcher, had had much experience in this area. Unfortunately a senior researcher was not available at the time the inquiry was being shaped. Later in the project, one of the senior researchers was available; that assistance was important as the actual data was being collected. His presence earlier on might have eased the tension that developed around the precision or lack of precision of the issue to be investigated.

The teacher proposed observations of the "low-reading group" (made up of five children, none of whom were target children); she phrased her purpose as "I want to see what they do". The researcher urged her to be more specific. The teacher posed five questions, which can be clustered into three categories (this clustering did not take place; it might have made the teacher's formulation of the inquiry more acceptable to the researcher, that is she could have viewed the teacher's focus of inquiry as thoughtful and coherent, rather than random. The teacher's questions were:

- Can I trust them? Are they doing what I think they're doing? These two questions can be categorized as concerned with gaining some knowledge of what the children were doing when the teacher was not physically close to them.

- Do they try to read? What do they do if they don't know a word? Do they avoid it? The issue here seems to be what the children are making of the assigned task - reading.

- What kind of intervention do I have to do there? At this point, the teacher can be understood to be anticipating the changes in her teaching practice which she can plan on the basis of the detailed observations of the children engaged in an assigned reading task.

The researcher notes that "the teacher's questions were still too vague. They didn't help me to generate a hypothesis". The researcher characterizes the teacher's formulation of

the issue as "from a teacher perspective rather than from the learner's", and comments that she was not interested in whether the children were able to "digest printed texts, nor was she interested in how they made use of the resources available".

The in-school researcher, with the help of a senior researacher, began a tight series of observations, with video-tapings planned for five days (Wednesday to Friday before a weekend, the Monday and Tuesday following). The original plan - to video the low-reading group as a whole - proved difficult; the teacher suggested that the focus might be on one child per morning. After viewing the first tapes (but with no opportunity to discuss them with the researachers) the teacher suggested that she would like to have videos of the other reading groups.

At the same time, the researchers viewed and discussed the tapes together. The senior researacher stated that he thought the "purpose of reading was lacking", and suggested that one of the ways to make the reading more meaningful and interesting would be for the child to share their reading with a friend, that is reading in pairs, rather than individually within an ability grouping. He proposed this pedagogic intervention to the teacher and she agreed. At the same meeting the teacher suggested that, if both writing and reading periods were scheduled for the morning, both activities could be taped. She also endorsed the suggestion that the researchers interview the children, using the reading section of the Child Interview Questionnaire (administered to all the target children) as a guide.

By the end of the round a considerable body of data had been collected: audio-tapes of some of the teacher and researcher planning and discussion meetings; audiotapes of some of the reading interviews with the children; videotapes of several reading and writing periods. There had been no opportunity for the teacher and the two researchers to watch, discuss and analyze the videotapes. There had been few opportunities for meetings to plan the ways in which the evidence might be collated in order to address one or more of the original issues.

Round 3 was underway almost before Round 2 ended. In addition to the demands of the resumption of the regular observations of the target children, the in-school researcher had to find time for end-of-year (in fact end of project) interviews with children, family and teachers, immediate and substantial work engendered by the closing down of the project, and the creation and administration of mother-tongue literacy tests. Thus the inquiry could not proceed through the stages of analysis and interpretation that potentially would provided the evidence for classroom change.

School 3

The Grade 2 teacher in this school was also a member of the project for Year 2 and Year 3. He and the in-school researcher had a close working relationship, and as well had become friends. Both had agreed in June of 1987 to participate in the International Reading Association annual meeting seminar on collaborative research proposed and developed by Chang amd Wells. This commitment was a powerful incentive to planning, carrying out and completing a piece of work.

The research topic the teacher chose for the whole class observation was drama in the classroom. This was also an aspect of the classroom life that had interested the researcher from her first visits to the classroom in Year 2. This is the way she described her impressions of the class:

> My first experience of observing the children putting on a play was the story of Goldilocks and the Three Bears, in 1986 ... I was impressed by the children's

> ability to take on roles and switch roles that were not typical ... Dramatic play is a regular activity in this class and often it occurs when the children request it. For all the performances I have observed, I was intrigued by the ABSENCE of the teacher's intervention in planning and organizing ... These observations led me to talk to the teacher regarding his intentions and expectations.

Clearly the conditions are fair for productive collaborative work: the teacher already has formulated an issue around classroom practice that he has been working with for some time, territory that he is very comfortable with; the researcher admires that practice and is intrigued by it - she would like to know more. The teacher framed his research focus with the question: "How do children resolve problems on their own in improvisational dramatic play?" In addition to the audiotapes and videotapes which the researcher was regularly making of the improvisational drama, the teacher kept a log of his own observations and reflection which he also discussed with the senior researacher working in the school.

He described the original drama work in his class as "an unfocused random activity"; he began to involve the rest of the class as audience with the hope that there would be more planning and greater cohesiveness in the productions. These were the 'problems' the teacher wanted the children to solve: lack of planning and lack of cohesiveness. As teacher and researchers discussed and analyzed the videotapes and transcripts, the teacher came to realize that the children did not share his notion of the problems inherent in their drama work. As he viewed and listened to the evidence, and with the researchers encouraging and leading him to ask new questions of that evidence, he came to realize that the children did not share his notion of what were problems. The children could present focussed, co-operative work without planning, could adjust to unexpected plot twists and characterizations, and could resolve conflicts within the group as the drama progressed. With these insights, the teacher came to the realization that his concern - his identification of the problems of lack of planning and cohesiveness - had been with the final performance of the drama before an audience; the children's concern was with the process of creating the drama.

The in-school researcher extended the inquiry by preparing a structured interview to discover what the children expected to learn from engaging in dramatic play, and their perceptions of how to be a leader in dramatic play contexts. When she analyzed and tabulated their responses, she was able to demonstrate to the teacher that the children connected the drama work directly with the reading and writing that was also a part of the Language Arts programme. One articulate and insightful child made connections between the drama work and the growing competency of children whose first language was not English, "First you don't know the word; then somebody tells you to say it; then you start learning how to say things. If they have a different language they can learn a little bit more English."

Both the teacher and the in-school researcher prepared papers for the collaborative research seminar at IRA. In this inquiry, the close partnership between teacher and researcher that already existed; their mutual fascination with the children's dramatic play; the possibility of arranging significant blocks of time outside the school day; the researcher's experience which allowed her to conceive of the value of the children's views; the deadline for the written research report; - all of these circumstances combined to provide the context for the planning, implementation and completion of a research project which was satisfying to both the teacher and the researcher.

School 4

The Grade 2 teacher in this school was a recently graduated teacher who was offered, and accepted, a Grade 1-2 class without being told about the project children who would be in the class; as well, she was appointed to the school's co-operative learning committee and also attended a series of language seminars provided by the Board for new teachers.

She decided to use a unit on animals, designed as a co-operative learning event, as the focus for her inquiry.

The unit was fairly tightly structured, understandably so given the teacher's inexperience, the wide range of percieved abilities amongst the children, and the nature of 'co-operative learning' constructed by the school committee. The children met as a whole class to choose the specific animals to be researched; co-operative learning groups were formed and met to choose the animal the group would work on. The groups met to devise a set of questions.

The whole class then re-convened to pool the questions and to create a list of possible sources of answers.The in-school researcher and one of the senior researches were participant observers during this process and took an active part in helping the groups.

The following week, accompanied by both researachers, the children go to the library to choose the appropriate books. During subsequent weeks the groups are engaged in a variety of activities. Four tasks must be completed by each group: a piece of writing, a drawing, a plasticine model, and a painting. After the work has been stored for safe keeping, the groups reconvene to "talk about what they have done".

During the last two meetings of the co-operative learning groups, the children finish the four items. Some of the children keyboard their stories so that they can have a print-out copy. The teacher prepared a three-sided panel as part of the school display in the gym for Education Week.

At a meeting a few days after the official end of the co-operative learning unit, the teacher and the researacher met to discuss their research project. The teacher speculates that only the Grade 2 children have benefited, and suggests that the researcher interview a sample of children from both grades. She suggests questions that can be arranged in three categories:

- The social nature of group work: Did you enjoy it? Would you like to do another research project in the same way? Would you work alone or with a friend?
- Research strategies: Where would you find the information?
- Audience: How would you present it to other people?

The teacher's questions reveal her concerns about the outcomes of the inquiry. These concerns are shared by the researcher, who has written in her field notes about half way through the unit,

> I leave the class exhausted and depressed in spite of just having two weeks' vacation. I can't help but feel sorry for the teacher who tells me that although she thinks the students have learned a fair amount about animals, she has strong doubts about this activity and would like to meet with me to talk about it.

The teacher and the researcher can find no time in overcrowded schedules to discuss and analyze the audiotapes and videotapes of the unit. If this had been possible during the unit, it might have been possible for this relatively inexperienced teacher to change or revise her instructional plan which was clearly not working. Confidence and experience are needed to recognize that a planned piece of work is not going well, and to undertake steps to revise and change it. The researcher had had no part in the instructional design, and was not really in agreement with that design. (The researcher had attended a day long workshop on co-operative learning, had been a participant-observer in a co-operative learning unit in Year 2 and thus had considerable experience to contribute). She comments

> The audio-tapings did not produce much of interest in terms of our focus - the literacy focus. ... I think she knew at the beginning what she wanted, but then she quickly found out that five of the kids couldn't read or write - she has five readers in a class of twenty - a unit that involved library research and writing needed some revision.

Nor can the researcher arrange the children's interviews which the teacher has requested.

Because of the teacher's inexperience and the stress of a probationary year and the responsibilities added because she was a member of the project, it was perhaps short-sighted to plan a piece of collaborative work that involved a whole-class unit. At the same time, the researcher was committed to two other research projects, both of which were scheduled to be reported at the annual meeting of the International Reading Association. It is not surprising that these projects claimed a large percentage of already scarce time.

Grade 4

School 2

When the teacher and the researcher met to discuss possible issues for the collaborative inquiry five topics emerged:

1. Editing the children's stories. One of the teacher's concerns: how to bridge the gap between sections of action in the stories. The researcher comments in her filed notes "Interesting topic, but difficult to implement. How to focus, what to do about it?"

2. Group work. Researcher comments 'What happens to kids when they work together, who does what, who benefits, who doesn't. Good potential."

3. Unit on the Olympics. Researcher comments "Easy to focus, follow up the work within the unit, but for what purpose; what are the benefits of these observations?"

4. Topics chosen by the children for their journals. Researcher comments "Very interesting, the writing is restricted in a unit of time; why do children choose one kind of topic over another one. But, is there a question, or is it just entertaining?"

5. Quiet kids, particularly two girls. Researcher's questions " Why are they quiet, what's happening, how to open them up? But if this proves to be a culture question or a family one, how to handle it?"

After discussing each possible issue, "group work" was chosen, framed within a unit on "The Olympics". The researcher comments

> The issue of group work seems to be one of the teacher's major concerns. We'll try to look at the dynamics of the group, the interaction of kids. This will help answer some of her questions and will help her to make decisions as how to set up groups in the future, on what criteria.

The group chosen as the focus of the observations is a newly formed one of six girls, including a project child, Erika.

The questions devised by the teacher and researcher together are:

> Who runs the group? Does the person(s) doing the running have a positive effect, a negative effect, or a selective one (negative for some and positive for others)? When help is needed, are the needers told the answers; are they helped to think about the answers; are they being put down by others for needing help (one to all of them, or any to any); are they given confidence?
>
> Finding answers can lead to criteria for grouping: let the kids have free choice? Separate friends?

They plan a close series of three observations of the groups at work, to take place over three consecutive days. Field notes, audio- and video- recordings will be made.

During the latter part of the first observation, each group presents their findings to the rest of the class. As she analyzes her observations, the researcher poses more specific questions to add to the original list. Does the grouping stay the same? Who will be the writer? Who will be the presenter? How will the girls be positioned?

The researcher's field notes are detailed and specific; she includes many illustrative quotes from the audio tapes. But, as seems to be not infrequent with collaborative work, the amount of time and energy demanded by the planning and implementation of an

inquiry used up almost all of the available resources. This is an issue which needs to be addressed in planning future work: the more realistic assignment of the total time available so that all the stages of the inquiry are adequately provided for.

School 3

The teacher had spent both Year 2 and Year 3 with the project. During Year 2 she and the researcher had established a friendly, working relationship.

The teacher had also worked closely with Gordon Wells during Round 2 of Year 2 when the school staff arranged a two-week school-wide programme around the theme of winter enchantment. The children spent every morning in their own classroom on theme work and chose from a series of optional activities each afternoon. During this time,

Wells spent several mornings in the teacher's class observing and videotaping the theme work on the Yukon. These videotapes and observations provided the illustrative substance for a paper (co-written with Gen Ling Chang) which Wells presented at the International Oracy Convention hefld in Norwich, England, in March 1987. As well, the teacher, Chang, and Wells have co-authored a chapter for *Co-operative learning: theory and practice* (in press).

The teacher, then, had had extensive opportunities to work as a teacher researcher and to participate in the analysis and interpretation of her work. When she and the in-school researcher met to plan the specific inquiry they would undertake during Round 2 of Year 3 (which would become the basis for the teacher's IRA presentation), it did not prove as difficult as it was for teachers with less experience of the research process. The teacher describes the process (1988) p. 1

> Revision - the focus of my inquiry- developed from my interest in language and thinking in the writing process. To make the question explicit, it was necessary for me to spend a lot of time with the research team exploring various curriculum issues and problems. Finally, it took this shape. If I familiarize my students with the language of revision, will there be an observable difference in their daily writing? An additional and perhaps equally important question has been - does my involvement in collaborative research change my behaviour in the classroom?

Teacher and researacher agree to situate the revision inquiry within a them unit on Living Things. With the help of a senior researcher, video- and audio- records were made; the researcher also arranged to interview the children in order to find out what their definitions of "revision" were.

The teacher comments "In discussion with colleagues on the research team, I realized that I had to revise my beliefs about revision....it has everything to do with reflecting on ideas and plans and making changes where it seems most reasonable to do so." Her report of the inquiry interweaves two themes around this central insight - her own reflections on learning and the chilrens' reflections on learning. In fact, although she begins with a fairly limited inquiry about revising during the writing process, the inquiry expands as she makes connections between and around her discussions with colleagues, her reading, her writing, and the records of the closely observed interactions of the children. She observes, "the children and I are drawn more closely together into a community of learners working to explore, reflect, and in the light of new assumptions, to revise old assumptions and to expand our understanding of the process of thinking and learning."

School 4

This Grade 4 teacher also spent Year 2 and Year 3 as a member of the project. In the spring of Year 2 a senior researcher had worked with him to create and carry out a science unit, with the children working in small groups, choosing their own topic for investigation, and presenting the results of their investigations to their classmates. This represented a departure from his whole class teaching. The observational records included field notes and audio- and video-tapes; he had worked on the analysis and interpretation of these records with the senior researcher (reported in "Concepts of literacy and their consequences for children's potential as learners").

For the free round, the teacher designed, with the in-school researcher and the senior researcher, an inquiry into the effects of group formation on writing opportunities. The students had just completed a math story writing unit in teacher-selected groups. For the new writing unit, the creation of fairy-tale pop-up books, children formed their own groups. All group discussions were audio taped and some were video taped. The children's story drafts and logs were collected as were the observational logs kept by the teacher and the two researchers; this systematic tracking and observation provided detailed data from several perspectives. During the close analysis of segments of the group discussions, the teacher and the researchers were able to come to a deeper understanding of the thinking, learning and writing processes that the children engaged in. It seems likely that the teacher's commitment to join the IRA symposium contributed to the availability of time, particularly the researchers' time, to complete the inquiry and shape it into published form.

Grade 6

School 4

In the spring of Year 2 a meeting was arranged at School 4 so that potential Year 3 teachers could meet the members of the research team and hear in more detail the demands, and possible benefits, that membership in the project might entail. At that meeting the Grade 6 teacher expressed her concern about the difficulty of finding time. As she said, "My day already runs regularly from 8.30 to 5."

In spite of of these initial reservations, in June, when the Grade 6 student assignments were being made, she did indeed agree to join the project and to participate in the IRA symposium in May, 1988.

She prepared a plan for the inquiry. It used a treatment/comparison method: to divide the class into three groups and to provide a different mode of conferencing for each: oral conferencing; written conferencing; and combined written and oral conferencing. The composing and writing processes of three students in each of the "treatment" groups would

be tracked in detail by means of audiotaping of the oral conferences and the collection of all drafts, notes and logs. The students' writing would then be compared to discover which conferencing treatment had been most effective. She described this later as "my neat little research design".

The teacher (1988) provides a clear window on the process by which the design of a collaborative inquiry is shaped throughout the process of the inquiry by all the participants. The original design included log-keeping by herself and the students; she says of her own log:

> As for the proposed teacher's log, I too soon abandoned it as being too

> cumbersome. Writing it during oral conferencing, or directly after meant robbing me of personal interaction with other students. When I left it until the evening, I could not always remember to whom I had done what! So back to my anecdotal note-keeping - perhaps less organized but more informative for me in the long run. In my notes, I had a tangible record of a student's progress over time.

She was equally observant of, and responsive to, the students' log-keeping.

> It was not a popular activity although it contributed to the students becoming more reflective, and sometimes helped them to make their intentions more explicit. Most students avoided writing theirs, and so specific directions from me were required. The students saw it as a waste of time, something that kept them from the pleasure of working on their research topics or conferencing with their peers. In their words, it was a "pain". Although the result was that their logs did not provide me with as many insights into their planning strategies as I had hoped, I still think it has a place. Perhaps with more use and some modifications, it might work better.

Although the original "neat research design" might have been carried out in a fairly straightforward manner by a researcher with no commitment to, or understanding of, on-going teaching and learning responsibilities, this teacher-researcher disovered that she could not maintain the three isolated treatment groups and that she was "constantly revising my original design *in order to teach*" (p.2., my italics). She (1988) writes:

> As a teacher, I found I could not carry out my plan to restrict one group to written responses only. What do you, as a teacher, do when a student asks for assistance? Can you say "Write down your problem and I'll mail back an answer tomorrow". Or how about when a student says "I can't read what you wrote" or "what do you mean by this?" Well, so much for written conferences only! (p.2)

Both the official researchers had had reservations about the original treatment design, but both were able to step back and allow the teacher- researcher, accommodating both roles, to reshape the inquiry on the basis of her own observations and reflections, on the actions and events that were simultaneously both research and teaching.

The teacher describes the preliminary planning as taking place over three or four days of "snatched" time - during recess, over hurried lunches, brief moments before and after school. This is a way of working that is inherent in collaborative work: the teacher's work and responsibilities in the classroom and in the school can seldom be set aside for periods of pre-scheduled, uninterrupted discussion. However, she saw the value as well as necessity in this way of working "...it gave me time to go away and mull over various problems and then come back and exchange ideas with the researchers." (p. 2)

As more reports of collaborative research, school-based inquiry and teacher inquiry are published, one of the themes to emerge is the inclusion of the students in the inquiry in intentional ways.

> Planning sessions were held with the students to explain our inquiry. As well, we had class-wide planning sessions where we all collaborated on the

> topics and needs of the students. Through these we became jointly involved in exchanging ideas, offering suggestions, and in general, investing in each other's activities. In contrast to the previous research activity where I provided all the scaffolding in the form of resources, suggestions, and samples of completed work and outlines, now our planning became a cooperative problem-solving event, where language was used in more exploratory ways.

The problem-setting, planning, and problem-solving have demonstrably emerged as a spiral with all participants informing and shaping the processes and outcomes. The inquiry did proceed to the final stage of a published report, prepared by the teacher for the International Reading Association Conference. In it, she presents her conclusions about the substance of the inquiry - oral and written conferencing with Grade 6 children - and about the method of the inquiry - collaborative work carried out by a teacher researcher and two researcher colleagues.

On conferencing, the teacher concludes (p. 4) "that written and oral modes each had their contribution", but includes the results of a student survey that shows *they* overwhelmingly preferred oral conferencing; the students reported that it was faster, easier to understand and that they "could sort out and extend their thoughts more quickly and easily". Although she does not take us behind these statements in detail, it is interesting to speculate on the role of the inquiry itself in enabling the students to articulate their thinking *about* their own thinking processes.

Of the collaborative work, the teacher concludes:

> For me the power of teacher-researcher collaboration in the classroom is the ability of different communities to share their knowledge, to have their concepts challenged or confirmed, while making connections among learning, teaching and research.

School 3

The Grade 6 teacher in this school was also new to the project in Year 3, as was the researcher with whom she worked. (The regular in-school researcher, was on maternity leave during part of Round 1 and all of Round 2 of Year 3).

The teacher had decided that the focus of the inquiry would be on the production of at least two issues of the school newspaper (this was the second year of its publication). She was finding that the available hardware and software inadequate, and she saw the project as providing the opportunity to collect the evidence that would support her request to the Area Superintendent for funding to purchase a Macintosh computer and a desk-top publishing software package. With more sophisticated technical tools, it was hoped that the students would find the whole publication process more challenging and satisfying.

This inquiry was already of interest to the researcher (in a later interview he commented that "there were a lot of topics that I would have no interest in at all") because he hopes to centre his own future research work on introducing computers into classrooms. Although he had no experience with desk-top publishing, he was knowledgeable about computers and was eager to learn more. He arranged to borrow a Macintosh and the desk-top software from the OISE library.

The intention for the focus of the collaborative inquiry was to observe the children proceeding through all the stages of publishing the newspaper using the more sophisticated equipment. However, towards the end of the year it became evident that

the new equipment was actually delaying the publication process: there were crashes because of insufficient memory capacity and copy could only be keyboarded by one individual. The researcher comments that at this point he felt that if the teacher had had total freedom to choose, she would have dropped the "research project" in order to get the paper out. Clearly she did not have the confidence, in the face of the "authority" of the project, to call a halt.

However, the inquiry did provide invaluable evidence for the teacher in understanding and dealing with a potentially undermining shift in the newsaper staff morale. She had begun to realize that the students were beginning to feel very frustrated and alienated from the newspaper enterprise; at this point, morale was so low that there was a danger that there would not be another issue. This was in sharp contrast to the enthusiasm and sustained work they had maintained in the first issue. When she saw a videotape that the researcher had made of the editorial board at work she realized the source of the difficulty: the high standards imposed by the editor (who had a personality strong enough to impose these standards) were discouraging the writers whose submissions did not meet the standards. The teacher re-organized the editorial board.

The researcher comments "From a scientific point of view, this introduced some variation in the research design that was not particularly desirable: we were not only changing the methods of doing the layout, we were changing the editorial staff. But the reality of the situation was that there just wouldn't have been any interest on the part of the students to continue with the newspaper."

It is necessary to put the resercher's comments in context. The research methodology for his doctoral dissertation in the Department of Applied Psychology at OISE was as follows:

> I presented 168 students in grades 8, 10 and 12 with some short stories I had written, about 100 to 150 words long. I saw each student once for thirty minutes. There were four alternative endings - two moral and two fictional. I asked each reader three questions: which two endings they thought were possible; which was meant to be the ending; and which they preferred. The teachers were not involved; I explained that I was doing a study of reading and they chose the students and arranged for them to be out of class.

In this kind of close, quantitative methodology any deviation from the plan would be seen as putting the validity of the data obtained in question. As the researcher remembered and described the events of the project he came to see the changes that had taken place as having widened his understanding of 'research' process during the project.

Both teacher and the researcher were able to arrange substantial periods of time to view, discuss and interpret the videotapes as they were produced. The teacher was interested in cooperative learning and used this as one of the frameworks for analyzing the evidence. She had given the researcher some articles on cooperative learning but it was not an area of interest he wished to pursue at that time. In retrospect, he comments that he had a relatively narrow focus: the consequences of the technology, and a comparison of the effects of using two types of computers and software.

In contrast the teacher was able to maintain a broader focus: How the children construct a learning and working relationship.

It has been difficult to identify and locate the evidence that describes the next stage of the work. Certainly during their joint analysis and interpretation particular questions and observations were undertaken, including: the ways in which one particular child

dominated a group and another child resisted; over a twenty minute period, how two children remained absorbed in their work in spite of all the activity going on around them.

Fortunately the researcher had the opportunity to reflect on what had made the collaborative enterprise possible. "She was willing to put in the time and *effort* to get involved ...the thing that made it work was her willingness to put in that time and effort." They have now written a joint report.

School 2

The in-school researcher at School 2 had worked intensively with the Grade 6 teacher in Year 2 in Grade 5 and in Round 1, Year 3 as they continued an investigation of genre with the whole class. They had established a strong and effective working relationship; the researcher felt very much a member of the Grade 6 class and understood that the teacher accepted and valued her as a contributor to pedagogical, instructional and inquiry planning and decision-making.

In mid-January teacher and researcher met to discuss plans for the collaborative research. The teacher had decided to focus the inquiry on the newspaper section of a unit on media. The first section of the unit had been devoted to work on advertising and the students had been engaged in writing and filming TV commercials.

For the newspaper section the class was to be divided into three groups with three teacher advisers: the teacher, the researcher and the school librarian. Each would work once with each group. At each group meeting, a different section of the newspaper would be examined and analyzed around the articles, issues presented, writing styles, topic importance and the advertising.

The resecher's field notes evidence her excitement at the prospect of being an official teacher, and then continue:

> As for collaboration: this is not the "collaboration" collaborative papers are talking about. The teacher works with the kids, there doesn't seem to be any attempt to share insights afterwards, to pose questions, or anything like that. I am treated like another teacher (hurray!) who can share an exciting topic and have access to direct contact with these children. I am not complaining; I think it is a terrific opportunity to work first hand, rather than observe. We are trying to get teachers to be researchers, while they are busy being teachers. While I am positive that the teachers benefit from the various attempts at research, whether voluntary or not, I consider my chance to be a teacher a fantastic opportunity to become a better researcher, by doing myself what I usually observe, also by being able to observe myself doing what I usually observe while I am doing it [the researcher is clearly planning to engage in Elliott's second-order action research].
>
> I can use audio and video equipment as I work with the kids, and get a totally new perspective on the matter of teaching and researching. Whether this will turn into a collaborative effort with the teacher or not, I consider it as a special piece of luck, and I can't wait to get started.
>
> Considering that one of my favourite parts of the research (or my favourite, period) is to work with the kids, to discuss with them, this is a golden opportunity to do just that, while I am allowing the teacher to have more time with the class. The teacher always insists that he considers it a privilege to have "his"children work with as many adults as possible; I think that he views

as the major benefit of the project being in his class, the fact that I am very close to the children and that they get to spend a lot of time with me.

This seems to be collaborative work rather than collaborative research. As the researcher says "There doesn't seem to be any attempt to share insights afterwards, to pose questions, or anything like that". However, it does fulfil the larger purpose of this round - to observe the class as a whole engaged in a unit of work. Because the researcher has indeed been consistently working since the beginning of Year 2 with many students beyond the target cohort this particular piece of work adds to a growing collection of evidence on the language and learning interactions of a whole class.

6. Collaborative Work: Groups of Teachers, Including Non-project Teachers

A number of different types of collaboration developed during the three years of the project: informal sharing between researchers and teachers of the observations of the teachers and students at work in their classrooms; more formal meetings when teachers and researchers discussed educational issues and their implications. It was hoped that the shared information would elicit insights regarding individual children that might not have occurred without this collaboration.

During Year 1 collaborative meetings of another kind were held, involving all the teachers participating in the study. They met with researchers to discuss work and to share experiences and insights. The discussions began with the showing of videotapes of individual teachers at work in their classrooms, thus enabling all teachers to see brief representations of their colleagues at work. (See Section 4)

In addition when the investigation began, each school staff had been invited to suggest possible topics for systematic exploration. It was hoped that, within the limits set by the study's focus, this would enable researchers to respond to areas of concern common to a group of teachers, not necessarily limited to project teachers.

Two schools asked for specific issues to be addressed: School 4 whose concern with improving the quality of writing in the school had prompted their participation in the study, and School 3. The Principal of School 4 discussed with the researchers the form that the study should take; he then arranged a staff meeting to gain agreement on this. It was hoped that once-monthly meetings would ensure the continuation of collaboration for the next three years.

School 3 did not respond as quickly, and did not have such a firm agenda to begin with. However, a group of teachers decided to work with the researchers on a collaborative study, several possible topics were discussed, and eventually "connections between spoken and written language" was decided on. At the next meeting this topic was explored further and it was agreed that each teacher would attempt to observe systematically one child's use of language during the course of one school day. In the last meeting of the year the focus was made still more specific: again based on careful observation, the context and conditions surrounding one child' sustained meaning-making.

At the last meeting there was general appreciation of the value of the meetings, and a decision to continue the following year. From the point of view of the researchers, the most encouraging result was a new openness of communication and shared information between teachers about important issues in language and learning.

At School 2 the principal decided to postpone the involvement of teachers in a collaborative study, since they were already participating in a number of programs to develop new activities. However, he committed the school to developing such involvement in the following year and suggested the possibility of an examination of peer conferencing in the context of the school's existing reading-partners program. This was eventually the nucleus of an inquiry that extended beyond the official end of the project.

The response of School 2's principal reveals the time constraints on the forms of staff-wide collaboration that can be initiated in schools. Further evidence of this is the decision by the principal of School 1 to decline the invitation to collaborate because of lack of time. The principal at School 4 overcame the problem partially by scheduling staff meetings to deal specifically with the collaborative work, but teachers still had difficulty carrying out the research observations around which subsequent meetings were to revolve. Both School 4 and School 3 provided supply teachers to free regular staff for meetings, but the expense of this, among other drawbacks, limited its desirability as a solution. (In Years 2 and 3 the Toronto Board and area superintendents contributed the costs of release time.)

In Year 1 two graduate students undertook research for their doctoral dissertations within the project framework. The work of one student continued through Years 1 and 2 with Grade 4 and then Grade 5 students (the same teacher remained with the children during these two years). The second student, conducting her research in School 1, continued for Years 2 and 3 as a research officer with the project.

Research staff were also pressured by time constraints; one problem was the time-consuming nature of editing and coding ethnographic field notes, which needed to be analysed in parallel with the program of data collection. Time also limited the amount of linguistic data that could be analysed, and only a small proportion could be done.There was also a limit to the time that principal researchers had available for the project.

In Years 2 and 3 research endeavours were developed within the project framework, but extending beyond the original design. In School 2 the in-school researcher (who began work with the project in Year 2) initiated an on-going study of children's perceptions of literary genres; she and the teacher worked with the whole class in both Years 2 and 3. The same researcher undertook an inquiry in Year 2 with a project teacher on the influence of relaxation techniques and music on storytelling and writing. Although staffing decisions prevented the teacher from continuing officially with the project in Year 3, the teacher and the researcher continued their inquiry.

In School 4 two projects were undertaken that involved whole classes: a unit on co-operative learning in a Grade 3 class and a science unit based on small-group work with a Grade 5 class. The in-school researcher and two other members of the research team were closely involved as co-teachers as well as researchers. Particularly in the science unit, the researchers took on the role of teacher educators, that is encouraging the teacher to undertake a different way of working, helping that work go forward, and collecting the data so that effects of the change could be examined and analyzed.

In Round 2 of Year 3 a small inquiry group was formed in School 2; it consisted of the in-school researcher, the Grade 6 project teacher, two non-project staff members (the school librarian and the SK/Grade 1 teacher), and another project researcher. The inquiry centred on the buddy reading programme in the school. At the end of the project the teachers decided to continue the inquiry for a year as an independent school-based inquiry (see Part Six of this Report).

7. Collaborative Work: the Nature and Structure of the Researchers' Participation

Chang and Wells (1986) emphasized the nature and structure of the teachers' and researchers' participation as an important issue. In other sections this report discusses the nature of the teachers' participation during the regular research, and the nature and structure of the teachers' and researchers' participation in specific and discrete collaborative research events. In this section, some aspects of the researchers' daily participation in the classroom and school will be described; these are particularly important because it was during their daily interactions that teachers and researchers began to build the collegial and communal realtionships that would encourage the planning and enactment of inquiries into issues and concerns articulated by the teachers.

Because of the interviews that the researchers conducted with family members of the target children, the researchers often had knowledge of family circumstances that were helpful to the teacher. Although some innovative schools realize that close communication and understanding between a child's family and a child's teacher promote learning for the child, in the schools within the project authorized teacher and family meetings were usually restricted to the brief time available at parents' nights and more extensive interviews when something untoward had occurred or when the child's palcement in a special needs category was contemplated.

A researcher comments: I share the family bacground with the Grade 1 and the grade 3 teachers constantly, not just once. When something comes up, I tell the teacher.

Because the researchers followed the target children closely over at least two and possibly three years, they had a detailed knowledge of the children's personalities, learning styles, rates of progress and changing frrendship patterns. In discussions early in each school year they could describe the children in detail to the teachers, detail that was not available in the childrens' school records that travel on with them. As the year progressed, researchers were able to alert teachers to untypical behaviour.

A researcher says

> We talk about the kids in terms of performance, particulalrly in reading and writing. Although the teacher may do most of the talking, if I disagree I will tell the teacher. I will support my disagreement by telling about what I have observed. We discuss these things.

Although the focus of the researchers' observations and data collection is the six designated target children (except during Year 3 when a round of observations was designed to allow observations to be made of the classroom as a whole), nonetheless the researchers were participant-observers, to a greater or lesser extent, of all the children in the classroom.

From an interview with a researcher

> We talk about the field notes. Sometimes the discussion goes beyond the target children, something that's happening in hte class that concerns other children, or perhaps their siblings in another classroom that I am observing.

A project decision had been made about the value of having, within the research team, individuals who came from each of the four ethnic groups - Chinese, English, Greek and Portuguese. This was particularly valuable for two reasons: a researcher who was fluent in the language and culture of the ethnic group to which the target child belonged could more easily conduct iterviews with families; and the reseracher was able to interpret the child's culture to those teachers who were not knowledgeable about that culture.

A researcher comments

> There is no other Chinese speaker in the school. (In this school, there has been a gradual increase in the number of Chinese children; as yet there is no Chinese-speaking community worker). Sometimes I'm asked to be an interpreter. I'm a facilitator more than an interpreter. Yes, I tell parents what the teachers are saying, but I also explain why the teacher wants to raise these issues. I also explain things on behalf of parents to the teachers - the culture, and the parents' expectations. There's a big gap there, between the Chinese community and the school.

Although the researchers' work during one year is directly connected to the three current teachers, the researchers maintain relationships with the teachers from the previous year or years, with other regular classroom teachers and with other members of the school staff.

> My friendship with the other staff members - the TA's, secretaries, the librarian, the French immersion teacher - keeps on when we have a chance to talk during lunch or brief hallway meetings. I try to talk to the teachers who were in the project last year, to maintain contact.

When teachers and researchers are assigned to, rather than choosing, a working partner, the establishment of friendly and respectful relationships and ways of working may take time.

> In Year 2 I got to know more about how to talk about kids, how to share information. With one teacher our friendship was established fairly quickly, because the teacher is quite warm, that's his personality. We talked about the kids, and the project in general, right away in the first two weeks.
>
> With the Grade 1 teacher it's taken more time. I think we really started talking to each other sometime after Christmas. I'm really trying my best to establish a friendly relationship.
>
> With the Grade 5 teacher, he's co-operative in a way. He's an interesting individual. You have to respect the teacher as an individual. He's the kind of person who doesn't follow the same path.

[8. Collaborative Work: Teachers as Researchers

It seems self-evident to state that doing collaborative research is an on-going process and that patience and responsiveness are essential attributes if the work is not to flounder or

stagnate because of anxiety, misconceptions and misinformation.

Although much of the evidence for documenting teacher-researcher relationships is held in private journals and memories, field notes and interviews provide evidence that can be arranged to construct general moments within specific events and recollections.

Our purpose is to begin to understand the development over time of teacher-researcher relationships. The project was fortunate in that seven teachers were able - either at their own request or because of school staffing decisions - to stay with the project for two years. As we continue the project narrative into the post-project year we will be able to follow three of those teachers.

Here is a teacher describing his first encounters with the project. Because of staffing changes, the Grade 5 classroom in the school had already had two teachers by the time this teacher was assigned there in October of Year 2. Shifts in student population had forced major staffing rearrangements in his former school; he arrived at this new school in a very unsettled frame of mind, to take over a class that had just begun to feel secure with their second teacher.

T: I was reluctant to be a part of the project but I had no choice. I had to try and get on with my job of teaching and disregard everything else. Pretend no one was there. I made a few differences in my teaching, but usually I didn't make any changes. I did try to accommodate for the writing project (the special study of eighteen children, of whom the teacher's six were a part); but I didn't make any great curriculum changes. Basically I got on with what I was doing and did not deal with those research people. I didn't even read the researcher's comments (these were the transcripts of the target child's interactions and the field notes which every researcher regularly provided to the teachers). I had too many things to straighten out. I was more concerned with scrounging books.

I was at odds with what the whole thing was about. General confusion. I needed an explanation of what was going on. But at this stage, I see a lot to be gained.

But around February or March I began to get more interested. This was when I was leading up to the science I unit.

One of the senior researchers was quite involved, she gave me a lot of help.

I began to see more clearly the benefit of the research that might come out. I began to look at the way I was presenting reading and writing.

I now feel free to say "Don't come in tomorrow afternoon".

I've gone through different feelings along the way. I'm taking Grade 4 next year partly because of the students, but also because of the research. Basically, I'm getting a whole lot more out of it. It was a nuisance in the beginning, partly because I wasn't making an attempt. I'm looking on next year as an exciting year.

A teacher who is finishing one year on the project comments:

T: I would have appreciated being in the total picture, instead of a

partial and fragmented one. I'd have liked the opportunity to see how things operate; not necessarily the option of changing, but to get a total picturee.

Another teacher who is also finishing one year on the project (she will have a sabbatical in Year 3 to finish her undergraduate degree) comments:

T: I did get another perspective. I took the writing information a bit more seriously, and read everything I could find on writing process. But I never forgot you [the researcher] were there.

The research project gave me another perspective on co-operative grouping. There were times when I would question what the children were getting out of it.

I seemed to have four or five, or sometimes six, extra bodies in my room. The children rolled with it; they were a lot more flexible than I was.

I never for a moment thought it was damaging to the children.

I would like to say that I read the transcripts, but I didn't; they were really boring. The project made me aware how much more honest a videotape is: the body language is cut off in the transcript.

Here is a comment from one of the teachers who wanted to participate in the research but could not until the free round in Year 3 because the staffing model for her school did not allow her to have project children. She became involved in a school-based project in the last half of Year 3.

T: For me that's the pay off - through collaboration I learn.

At the same meeting, a teacher who was considering becoming a member of the project in Year 3 voiced concerns and dilemmas that are faced by all teachers who become involved in research projects.

T: I have grave concerns on time constraints. I'm already here from 8:30 until 5. (This teacher took on the responsibility for a number of team sports. In tournament time it is fair to speculate that her working day extended well beyond 5 o'clock). Where do I find an hour to analyze? When do I do that? I still have marking and preparation.

Teacher: I learned that kids are productive when they are by themselves. for the first time I could see what they could do. I shouldn't feel so bad about leaving them alone. I found out I'm a bit assertive; I kind of like it.

Teacher: Talking about the researcher coming in every day to do observing and recording. Feeling up tight about people coming in to watch, fairly paranoid if the children don't perform. At the end, let everything go, relax. We're all doing the best we can do.

Teacher: On-the-spot help from a researcher for children with reading difficulties. About myself, I talk too much. Very helpful to have other adults in the room. I sat with one group, the researcher sat with another. That's why I'm having a good time with group work.

Teacher: Safer when there's something to talk about. The other person's not judging all the time, just watching what's happening.

Teacher: I certainly think the project, by requiring me to reflect on what I was doing, so I could articulate things a little better, was beneficial to me. It required me to think things through, and once I reflected I thought "What am I doing in language in my room?", it just seemed logical and almost inexorable that I would go to the next stage "What can I do to improve when I do things and how I do things in the room?".

Teacehr: The project has involved me in doing some classroom research. And I regard this as valuable, because the classroom as a research lab is a worthwhile idea. It has a long term benefit for changing me professionally, while still keeping within a classroom which I enjoy doing.

Teacher: By going and talking to other people, as we did at the cross-school grade meetings ... in effect I had to explain, not quite justify, but certainly explain, what I was doing.

Teacher: What I expected from me was just to allow access, and that was it. I didn't expect that there would be any work. I wasn't sure what was going to come out of it.

Teacher: I thought the corss-school grade meeting would be a discussion of the project, that maybe you had some basic findings already.

Teacher: At the beginning of the year I didn't want to get involved because I was concerned with too many other things. But also knowing that the more you know about what's being measured, the more you move towards that. ... But one of the things that attracted me for the second year was your approach to the research ... That working as partners with teachers, that you do a bit of research, you look at it and you make changes.

Teacher: I'd be interested in finding out what the results are, especially as far as kids' writing is concerned. What are the kinds of things to look for.

P.I.: I asked all of you to tell me what you would like to videotape, so that you can talk about what you're doing, why. I hear you saying that the contexts in which you work, you find frustrating. In the end it may be possible to have the conviction and confidence to make changes. If we can reflect to you what you're doing, you can be agents, agents in directing the curriculum in your own schools.

The Toronto Board believes in this kind of work, they helped fund this project, to give you that sort of confidence, to share with your colleagues.

9. Collaborative Work: Principals and Other Administrators

If there is to be fruitful inquiry in the schools, however, administrators can perform no higher function than facilitate it." (Schaefer, p. 68)

Administrators and particularly the principals of the four schools involved in the project played important roles in the collaborative aspect of the research. In the spring of 1985 Gordon Wells, as one of the principal investigators, visited each of the schools that had expressed an interest in participating in the project. After preliminary discussions with the principals, staff meetings were arranged so that Wells could elaborate on the benefits to, and responsibilities of, the teachers in participating schools, and particularly those teachers who would have the target children cohort in their classrooms.

Since staffing models and student placement decisions for Year 2 and Year 3 were in the future, teachers and principals at these meetings mandated the research presence on behalf of unknown teachers. It is clear that the principals' willingness to accommodate the demands of the project - for instance, keeping six children together for three years of schooling - was crucial to the smooth administration and operation of the project. In some cases, the cohesion of the cohort became impossible: a child might be retained in a class or promoted out of sequence.

It was also assumed that, in the event of new staff being hired to teach a grade which housed a cohort of target children, the principal would make it clear to the prospective staff member that this was one of the conditions of employment. Unfortunately, in one case this was not done, and it was doubly troublesome because the teacher was about to begin her first year of regular teaching.

The research team assumed that the principal or vice-principal would make sure to introduce the new teacher to the in-school researcher at the beginning of the school year, and, as well, that there would be time for the researcher to explain at least briefly the research routines. This was seldom possible, because of the rush and flurry the first weeks of September.

Several major areas in which the interest and influence of the four principals was important:

- an understanding of and support for the intellectual nature of the project
- the expectation of "benefits", both immediate and long-term
- accommodation of project requirements in administrative decisions about staffing and student placement
- flexibility in the scheduling and agenda of staff meetings
- decisions about the content and purpose of contractual professional development days
- release time for teachers involved in the project
- availability for meetings with the principal investigator and other researchers to continue to plan the school's involvement with the project and to recognize and resolve problems as they occurred

The principals, as the other participants in the project, showed a range of involvement and response which changed over time. In the middle of Year 2, the Principal of School 4 expressed concern that there were as yet "no benefits" to the school from the project. He hoped and expected that in the near future Gordon Wells would present a lecture to the school staff. The principal was perhaps recalling staff development meetings at which

Mary Ellen Giacobbe and Donald Graves had presented lectures on writing process as well as observing children at work in classrooms.

But in a paper prepared for the International Reading Association Conference, Toronto, 1988 the principal stated,

"At the time, when I discussed collaborative research in classrooms with Gordon, Gen Ling and Ilda, I had a hazy notion about the relationship between teachers' professional development, their performance reviews, school-based curriculum planning and implementation and collaborative research. How could all of these educational concerns, which are very real to me, be served and facilitated through collaborative research." (p. 1)

"It took some time at this school or at least with me, to see the evidence of the claim that expertise develops most effectively when we become active constructors of our own knowledge, and to do so, opportunities must be provided to share in the responsibility for the selection, organization and evaluation through which knowledge and competence are acquired.

Today, the teachers who spoke to you are good examples of our enterprise. They are educators who through collaborative research in their classrooms have been able to examine, explicate, and reflect on their own practices. The greater understanding they have gained, has opened up possibilities and opportunities within the area of teacher development that in my opinion have previously not existed." (p. 2)

He concludes:

"I wish to propose a professional development model for teachers and administrators that would include... a research component whereby researchers and teachers collaborate in investigating concerns raised by teachers." (p. 3)

The principal's recognition of the possibilities of collaborative research can be traced almost directly to a school meeting held at the school at the end of Year 2. The purpose of the meeting was to inform prospective teachers of the project children about the nature of the project and the demands that the project entailed for the participating teachers. Unlike two of the other schools this school had at least two and sometimes three classes in each grade.

"What I've learned is to see more of what's going on in the classroom than I did as a teacher. After one hour's discussion, painstaking, line after line of a transcript, I can sit back and be a researcher, not a teacher... I never have time to sit back except at promotion meetings."

"We've had three hours today to talk shop. This can lead us down the road of research and pay off in the future."

"An interest that Gordon and I expressed was collaborative work outside of the project with the whole staff. This has to be something that the staff buys into."

"We do have an obligation to look at curriculum development. The collaborative research helps us in all kinds of ways."

The project schools were located in three Toronto School Board administrative areas; the local administration structure had been radically changed and these changes went into effect during the summer before Year 1 of the project. This radical re-organization, affecting boundaries, appointments and responsiblities, made it difficult to engage in liason work with area superintendents and consultants during Year 1. It was possible in Year 2 to arrange informal meetings with two of the area superintendents and one of

the language arts consultants. They supported the project work and were instrumental in the continuation of independent school-based inquiry projects after the Language and Learning Project had ended.

10. Teachers as Researchers: a Reconstruction

'This is meant to be an encouraging book, whose theme is caught in James Britton's observation, "What the teacher does not achieve in the classroom cannot be achieved by anybody else."'

This is the last sentence of the Preface written by Dixie Goswami and Peter Stillman to introduce the wide-ranging collection of essays by theorist- practitioners and teacher-researchers, edited and published under the title Reclaiming the classroom: teacher research as an agency for change (Upper Montclair: Boynton/Cook, 1987). Much educational research is undertaken for the purpose of designing innovation that will result in change (although it is well to keep in mind here Lawrence Stenhouse's affirmation that innovation does not necessarily bring about change.) That educational research might be formally undertaken by practising teachers (in fact ,as Britton implies, might be more effectively undertaken by practicing teachers) is a relatively new, though increasingly flourishing, form of educational research, particularly in the curriculum area.

This was, however, a view not widely held at the time the Language and Learning Project began and Goswami and Stillman's characterization of this more accepted, and to some extent more acceptable, form of educational research as "an elaborate, formalistic process best left to experts with special training (and special funding), a view that casts teachers in the role of consumers rather than producers of knowledge about learning" would, it seems likely, have been accepted by the majority of the teachers and school administrators who by their presence in the project schools became connected with the project. It seems fair to say that a number of those same teachers and administrators have, through their experience of the project, come to understand and know that teachers can ask questions for themselves, can "observe, document, and draw conclusions - with the help of their students - and to do so throughout their professional lives." These understandings have been extended by these teachers and administrators. As this report, and its appendixes, demonstrate, teachers and administrators, as well as researchers, took up many opportunities for conference presentations and journal articles in order to contribute to an awareness in a variety of educational communities of the possibilities for, and benefits of, such work. (One must also keep in mind the power of informal meetings and conversations in extending the influence and take-up of new forms.)

It has proven difficult, in large part because of our intimate and lengthy involvement with the collection and analysis of the data, to locate ourselves on the high and neutral ground from which relatively clear and distanced reflective accounts of the collaborative work might be constructed. Goswami and Stillman's collection of observations about what happens when teachers conduct research as a regular part of their roles as teachers provides useful signposts for surveying the teacher research undertaken during the project. The following paragraphs attempt to review the project using some of the issues they identified.

1. Their teaching is transformed in important ways: they become theorists, articulating their intentions, testing their assumptions, and finding connections with practice.

"When we first started, I needed time for conversation." One teacher's reflective comment recognizes the importance of opportunities for serious conversation about serious work, and also hints at the possible infrequency of such opportunities in schools where research (theory-building) is not imagined or acknowledged as a regular part of teachers' regular work. However, time is not the only component. Everyone engaged in research or inquiry learns, and continues to learn, how to participate in speculative conversations. It is by membership in such conversations, perhaps for a time as a silent member, that one becomes 'articulate'. The term 'membership' is a deliberate choice. Teachers have become accustomed to being onlookers, or on-listeners, in research conversations; collaborative work within a research team that is built on assumptions of shared interests, potentials and goals make it possible for each participant to engage in wide and complementary undertakings. A teacher phrased this as "I didn't understand how to formulate a question. I didn't have that skill."

"I began to look at the way I was presenting reading and writing". Certainly teachers work every day on the basis of their "educated intuition"; with a research perspective, teachers as researchers can understand their practice as problematic in a different sense, and begin to look behind their accepted ways of presenting not only reading and writing but other parts of the curriculum as well. This was realized during the project with the decision that during each round there would be a particular focus for the in-school researchers' observations and selections of audio-tape to be transcribed. This enabled teachers with a particular concern, for instance math or computers, to use the regular project data.

"It [the project] required me to think things through, and once I reflected and thought "What am I doing with language in my room?", it just seemed logical and almost inexorable that I would go to the next stage "What can I do to improve when I am doing and how I am doing these things in my room." Here a teacher is describing the move from observation to practice. Educational research that does not engage teachers in the research process must by its nature be evaluative and prescriptive. When teachers become researchers they take responsiblity for decisions about change on the basis of questions they choose to formulate, on the evidence they have had a part in collecting, and by means of the analysis in which they have played a central role.

"By going and talking to other people, as we did at the cross-school grade meetings, in effect I had to explain, not quite justify but certainly explain what I was doing."

"Once it got rolling, I was the facilitator. I got together some books and equipment. I was really a floater. When they needed to discuss something I was there. They dealt with the questions and pursuits on their own. I don't think I answer questions. Because, quite frankly, I didn't know that much about the topic."

2. Their perceptions of themselves as writers and teachers are transformed. They step up the use of resources; they form networks; and they become more active professionally.

A researcher's comment after viewing a videotape: "You model the role of writing - on the board, in your notebook; exactly in the way you hope they will do." The teaching of writing has been a major thrust in curriculum innovation and development over the past ten years; it is referred to in the Toronto area as 'process writing'. Writing was a major study within the project, and a concept was developed of the writing-driven curriculum. One of the central tenets of such a teaching approach is the teacher as writer. Work within the project fostered the recognition of teachers as writers within their own classrooms, as this quote demonstrates. In a teacher support group in Year 1, with the help of members of the research team, teachers undertook the writing of a language policy document for their school as a process writing event.

During the preparation of papers for a symposium at the 1988 IRA Conference, teachers and researchers participated together in a writers' workshop. The inquiry group formed in another school prepared reports and proposals in seeking support for their independent school-based study.

"This kind of hands-on classroom research is very valuable, and I am quite excited about doing this. So I think it is a long term benefit for changing me professionally, while still keeping me within a classroom which I enjoy doing." This is a dilemma faced by many mid-career teachers who prefer classroom teaching to the administrative and consultant positions now open to them, indeed expected of them; positions that they are being pressured to take. Working as teacher researchers they can continue as classroom teachers without forfeiting the professional recognition that is assumed to come with the administrative and consultant posts. Teacher researchers report their work at conferences and professional meetings; they are invited to participate in workshops and seminars; they are encouraged to submit journal articles and to contribute to published collections. Principals and administrators are not unaware of this innovative work and the underlying statements about the school and the school area policies that support it. In an era when schools in many areas are in competition for students, the presence on the school staff of professionally active teachers is beneficial.

3. They become rich resources who can provide the profession with information it simply doesn't have. They can observe closely, over long periods of time, with special insights and knowledge. Teachers know their classrooms and students in ways that outsiders can't.

It is possible, from our experience within the project, to enlarge on the ways in which this information is used by the profession. In traditional educational research teachers are excluded not only from the data collection but as well from its interpretation. Data is excerpted from the collected data bank and analyzed and interpreted by the named researchers within their frameworks and points of reference. Certainly researchers used some of the project data in this way in order to extend their own inquiries and to report them in journal articles and conference papers (see Appendixes). An important difference is that the articles and papers were informed by the observations, perceptions and insights of the teachers who had created the classroom work, co-operated and assisted in the collection of the data, and brought their own perceptions to the analysis and interpretation.

Team members are optimistic that this will become a more usual way of working within academic and school communities.

4. They become critical, responsive readers and users of current research, less apt to accept uncritically others' theories, less vulnerable to fads, and more authoritative in their assessment of curricula, methods, and materials

"For me the power of teacher-researcher collaboration in the classroom is the ability of different communities to share their knowledge, to have their concepts challenged or confirmed, while making connections among learning, teaching and research."

"I took the writing information a bit more seriously, and read everything I could find on the writing process."

"The research project gave me another perspective on co-operative grouping [a form of classroom management strongly supported by the Toronto Board]. There were times when I would question what the children were getting out of it."

"Computers are being used as electronic workbooks. Software publishers claim : 'Use

this programme and your children's test scores will go up.' Some studies show fantastic gains. I don't think there can be vast gains with one computer and twenty children."

It is not uncommon for teachers to hear or read the phrase "The research shows ....". The speaker or writer proceeds to tell, and does not invite or expect any response other than belief. Teachers who are researchers understand the constructed nature of knowledge, and its ambiguities, conflicts and contradictions. They begin to trust themselves as experts not only in the immediate research enterprise but in the larger research community.

5. They collaborate with their students to answer questions important to both, drawing on community resources in new and unexpected ways. The nature of classroom discourse changes when inquiry begins. Working with teachers to answer real questions provides students with intrinsic motivation for talking, reading, and writing and has the potential for helping them achieve mature language skills.

"What do you boys plan to do with this work? How could people learn from all of this?"

"The children and I are drawn more closely together into a community of learners working to explore, reflect, and in the light of new assumptions, to revise old assumptions and to expand our understanding of the process of thinking and learning."

"Planning sessions were held with the students to explain our inquiry. As well, we had class-wide planning sessions where we all collaborated on the topics and needs of the students. Through these we became jointly involved in exchanging ideas, offering suggestions, and in general, investing in each other's activities."

In fact much of the work of the project as a whole records the "changes in the nature of classroom discourse" when teachers become researchers, when they intentionally identify their classrooms as "a community of learners".

This has been an encouraging project. Midway, James Britton celebrated his eightieth birthday. His colleagues assembled a collection of essays to honour him (one of the invited contributors was Don Rutledge, a strong supporter of the Language and Learning Project). The editors titled the collection "The word for teaching is learning". This might serve as a one- sentence descriptor not only of the intentions of the project but of the outcomes.